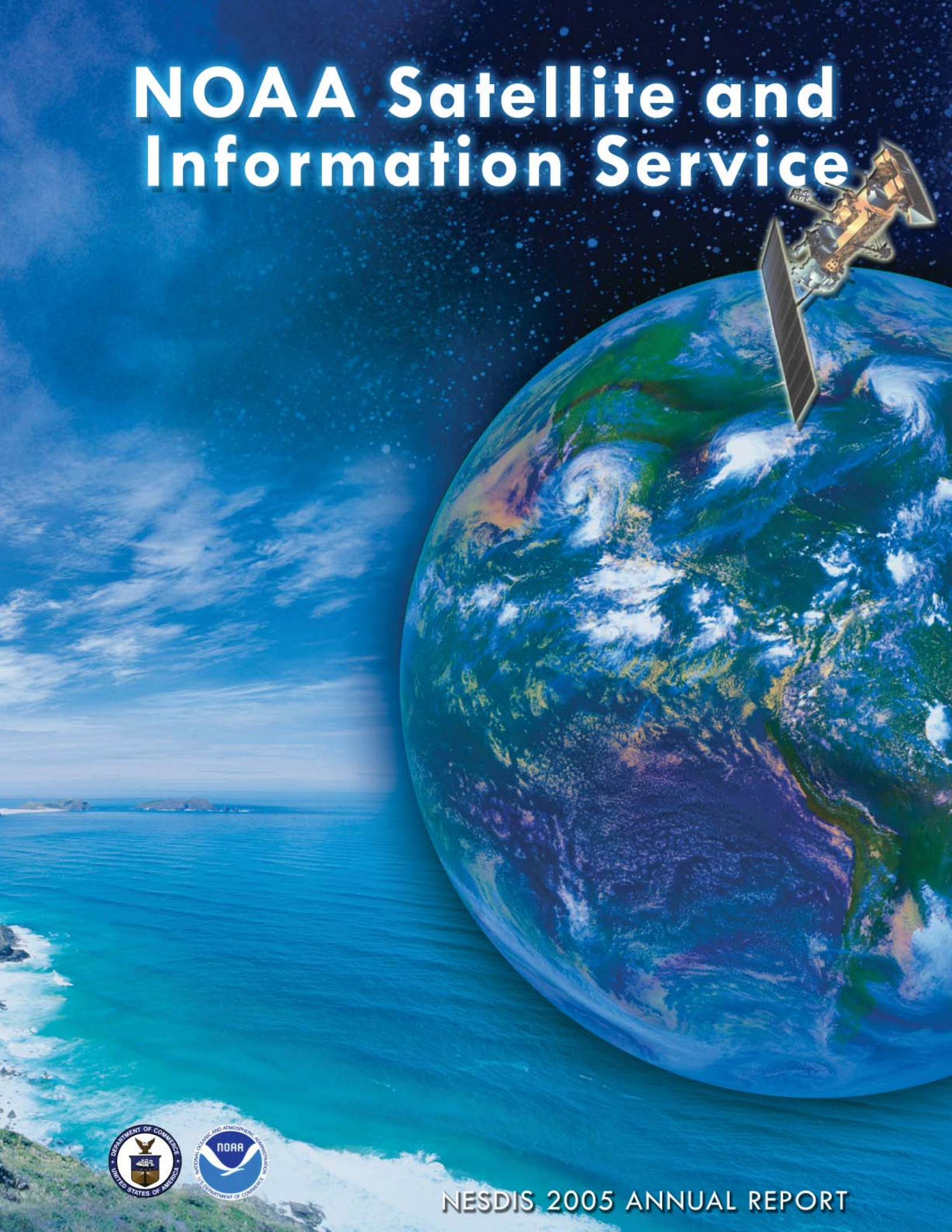


NOAA Satellite and Information Service



NESDIS 2005 ANNUAL REPORT

A Letter From The Assistant Administrator...

MISSION OF NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE (NESDIS):

To deliver accurate, timely and reliable satellite observations and integrated products and to provide long term stewardship for global observations data in support of the NOAA mission.

NESDIS VISION:

To be the world's premiere source of comprehensive environmental data and information.

Our accomplishments for 2005 and our contributions to the Nation are a testament to the professionalism, dedication, and outstanding service provided by the employees of NOAA's Satellite and Information Service (NESDIS).

This year's Atlantic hurricane season was the most active on record, with 26 named storms. Our employees provided around-the-clock, real-time support to Federal, state, and local agencies in monitoring, tracking, and analyzing the hurricanes. In the face of Hurricane Katrina's devastation, employees at the National Coastal Data Development Center at the Stennis Space Center in Mississippi remained steadfast in their dedication to duty. In the aftermath of Katrina, the center led efforts to loan vital computer equipment to the Mississippi Department of Marine Resources to support state activities. A record demand for information was brought on by Katrina. Users from around the world logged onto NESDIS Web sites to receive updates on the storm's position, view satellite imagery, and check on rainfall potential. The week before Hurricane Katrina made landfall, the Office of Satellite Data Processing and Distribution saw a total of 206,814,261 Web site accesses, providing a total of 6.03 terabytes of data.



In addition to hurricane information, visitors to NESDIS Web sites received a wide variety of information during the year, including real-time satellite imagery and environmental data from various other sources. The international Argo project, which provides high-quality, real-time monitoring of the global oceans, saw a dramatic increase in the number of data requests each month, from 87,645 in August 2004, to 558,527 in August 2005. Web statistics also show a growing interest in NOAA's coral reef data and information. The number of visitors to NOAA's Coral Reef Information System Web site has increased 115 percent since May 2004. In the aftermath of the devastating Indian Ocean tsunami that took place in December 2004, the National Geophysical Data Center (NGDC) added substantial amounts of data to the NGDC global earthquake and tsunami databases.

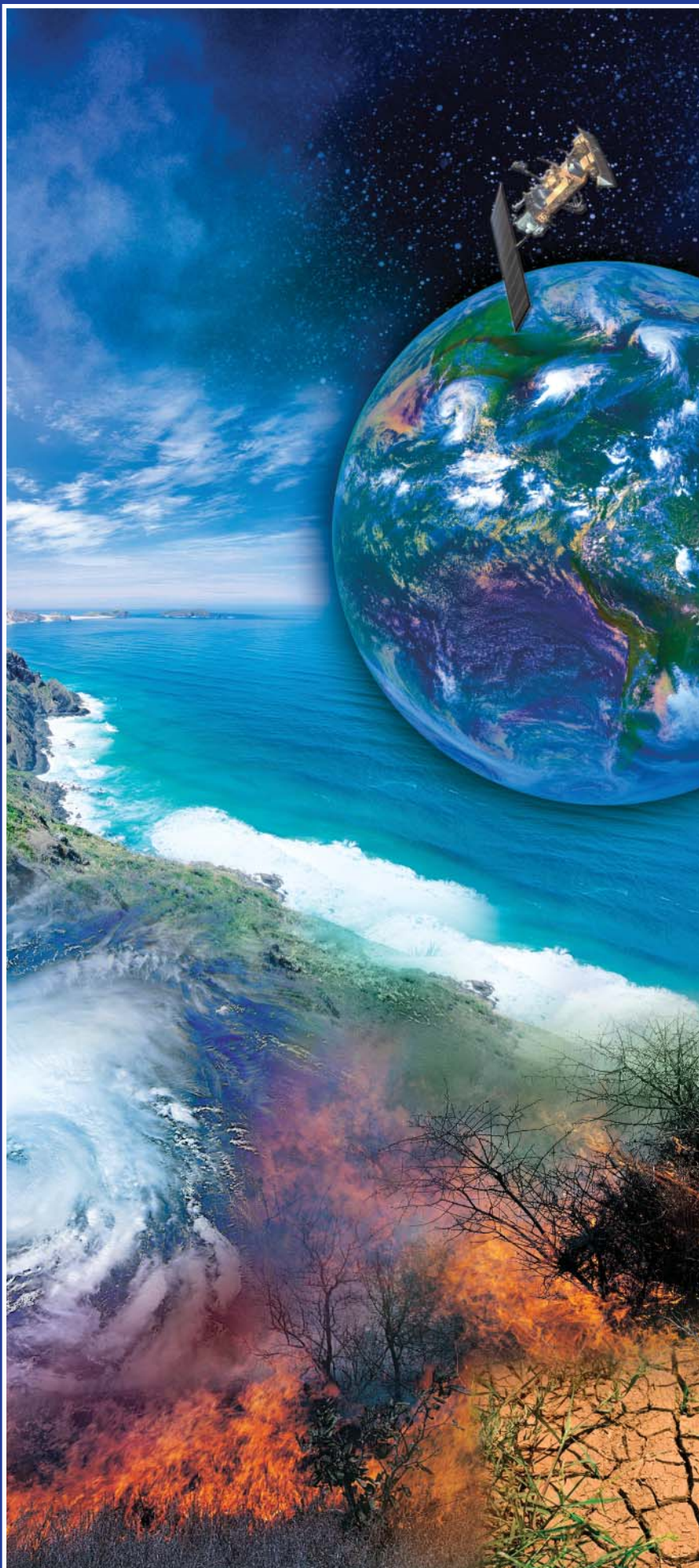
A satellite crucial to the NOAA mission, NOAA-18, was launched on May 20. NOAA-18 is critical to improving NOAA's weather and climate forecasts, maintaining data continuity, and developing a global Earth observation program. Contracts were awarded for the Program Definition and Risk Reduction phase of the Nation's next-generation of geostationary satellites, GOES-R. These contracts will provide information essential for the GOES-R Acquisition and Operations program.

The new NOAA Satellite Operations Facility (NSOF) in Suitland, Maryland, is now 98 percent complete. The NSOF will house NOAA's satellite command and control functions and data processing and distribution activities that are central to the NESDIS mission. The award-winning facility will replace the World War II era building that houses satellite operations. NSOF has earned several awards, including a General Services Administration, Design Excellence citation for its unique and advanced architectural design.

During 2005, our employees demonstrated outstanding professionalism, dedication to duty, and a commitment to excellence. I thank them and look forward to an exciting year ahead.

A handwritten signature in black ink, reading "Gregory W. Withee".

Gregory W. Withee
Assistant Administrator for Satellite and Information Services



INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. NESDIS supports this mission with a focus on NOAA's mission goals.

Goal 1: Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.

Goal 2: Understand climate variability and change to enhance society's ability to plan and respond.

Goal 3: Serve society's needs for weather and water information.

Goal 4: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation.

Goal 5: Provide critical support for NOAA's mission.

This annual report highlights key achievements in 2005 that have resulted in numerous benefits to the Nation. NESDIS provides global environmental data from satellites and other sources to NOAA and other Federal agencies, the Nation as a whole, and international partners. These data are used to provide severe storm warnings, short- and long-term weather forecasts, climate analyses, satellite-aided search and rescue, and other services. NESDIS contributes to the national economy with data that support resource management in areas such as energy, water, transportation, and global food supplies.

Organized according to NOAA's mission goals, this report highlights our accomplishments that support these goals. It also provides an update on the following NOAA cross-cutting priorities: developing, valuing, and sustaining a world-class workforce; integrating global environmental observations and data management; ensuring sound, state-of-the-art research; promoting environmental literacy; and exercising international leadership.

GOAL 1:

Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.

Our Nation's coastal and ocean resources are vital to our economy and tourism industries. Coastal areas, among the most developed counties in the country, are growing much faster than counties elsewhere. Each day over 3,600 more people move to coastal areas. Coastal and marine waters support millions of jobs and serve 180 million tourists each year. The ocean provides over \$115 billion to the U.S. economy each year. Commercial and recreational fishing industries add an additional \$48 billion, with another \$6 billion in direct and indirect economic impacts from aquaculture. The United States, with its Exclusive Economic Zone of 3.4 million square miles, manages the largest marine territory of any nation in the world. NESDIS provides data and information used to restore and protect ocean, coastal, and Great Lakes resources. NESDIS is continuing to improve the accuracy of forecasts of significant ecological events.

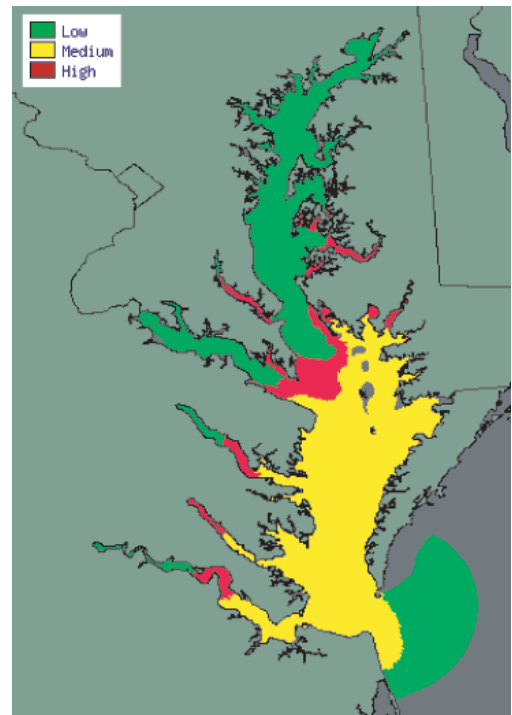
CoastWatch Nowcasts Harmful Algal Blooms in the Chesapeake Bay

Harmful algal blooms (HABs) afflict the Chesapeake Bay, posing threats to human health and natural resources. Using modeling and satellite support, NOAA's CoastWatch program issues maps of these blooms, enabling the local community to take protective actions in the affected areas.

To obtain data, CoastWatch scientists use hydrodynamic models and satellite measurements to estimate the relative abundance of *Karlodinium micrum* (K. micrum). Advance warning of HABs increases the options for managing these events. This project represents collaboration among scientists from the Maryland Department of Natural Resources, the University of Maryland Center for Environmental Science, the University of Evansville, and NOAA. The group plans to develop and implement an operational system that will provide nowcasts and forecasts of the likelihood of K. micrum and several other HAB species in the Chesapeake Bay and its tidal tributaries over the next five years.

The most current K. micrum nowcast and information describing the procedure used in creating the maps are on the CoastWatch Web site.

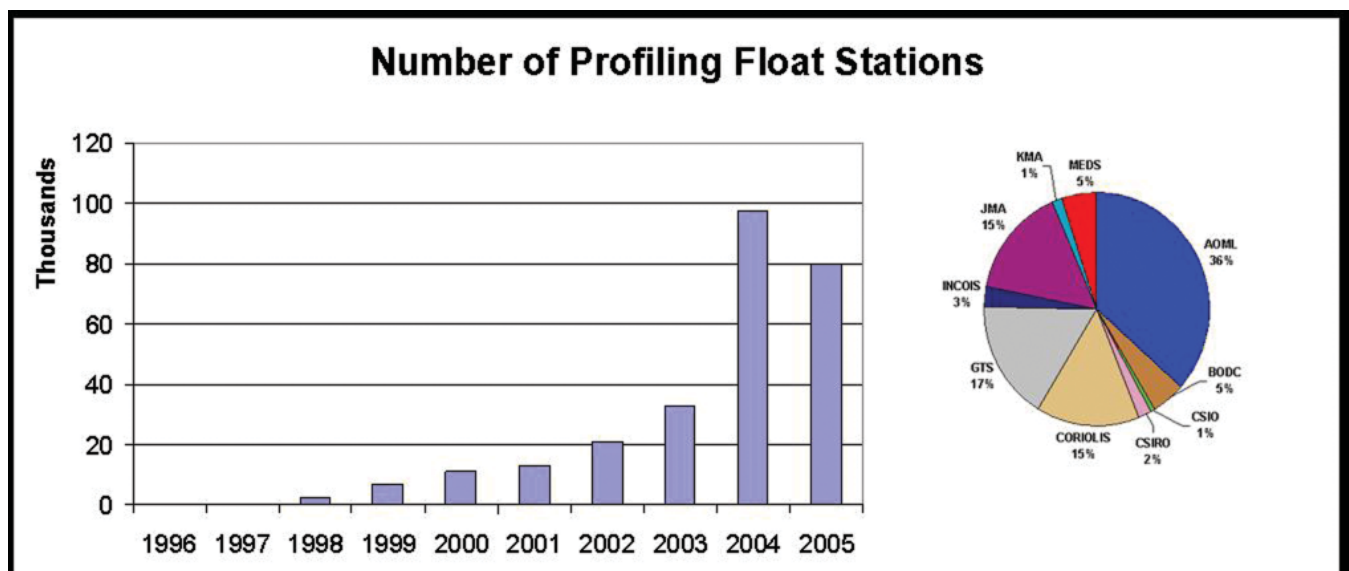
Please visit: http://coastwatch.noaa.gov/cbay_hab



Nowcast of the relative abundance of the ichthyotoxic dinoflagellate *Karlodinium micrum* in Chesapeake Bay on April 20, 2005.

Operational Near Real-time Ocean Profile Data Systems Provide Salinity Profiles of the Global Oceans

The Near Real-time Ocean Profile Data Systems, Argo and the Global Temperature-Salinity Profile Program (GT-SPP), are internationally coordinated programs that provide high quality, real-time monitoring of temperature-salinity profiles in the global oceans. They provide vital support for global ocean modeling efforts, climate studies, and climate prediction, enabling scientists to identify the nature of and causes for climate variations.



The number of Argo profiling float stations is sorted by the observation years; the pie chart indicates the percentage of floats handled by each data assembly center.

These programs are major components of the Global Ocean Observing System and the Climate Variability and Predictability program of the World Climate Research Programme. The National Oceanographic Data Center operates the Global Argo Data Repository for Argo and assembles both real-time and delayed-mode GTSP data into a continuously managed database.

As of August 2005, the Argo database consisted of about 174,100 individual station files, with new files generated and added daily. The GTSP database contains 2,300,000 individual station files, with new files generated and loaded into the database weekly.

Please visit: <http://www.nodc.noaa.gov/argo/index.htm> and <http://www.nodc.noaa.gov/GTSP/gtsp-home.html>

National Coastal Data Development Center Provides Access to Coastal Data

The National Coastal Data Development Center (NCDDC), at the Stennis Space Center in Mississippi, supports ecosystem stewardship by providing access to the Nation's coastal data resources. NCDDC provides these data to users via the Internet, using established and emerging technologies.

In 2005, NCDDC developed and managed various projects, including the:

- Coastal Risk Atlas
- Cruise Information Management System
- West Coast Observation System
- Relative Abundance Tool

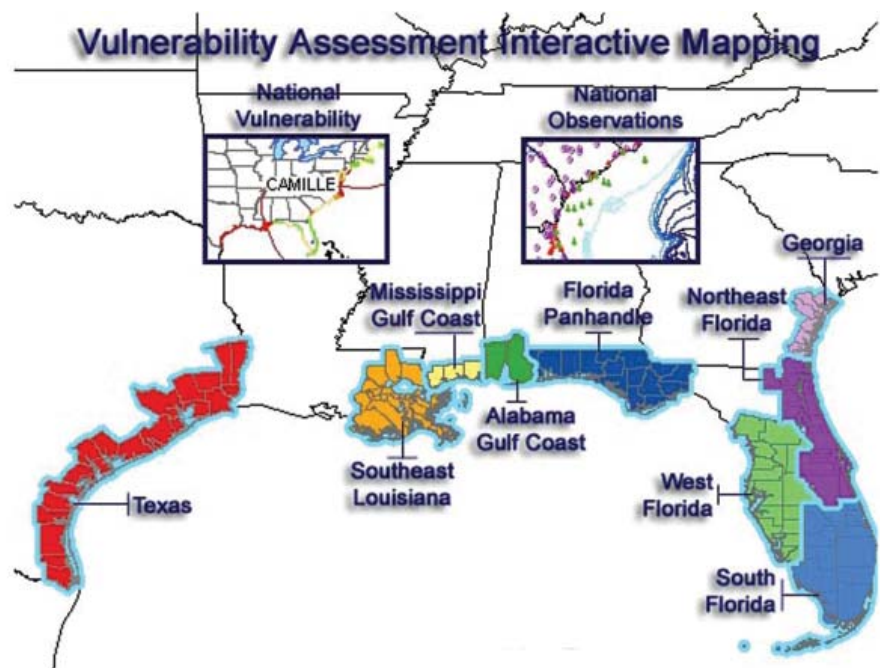
The Coastal Risk Atlas: Predicting Hurricane Effects

The Coastal Risk Atlas is an online tool used to assess an area's vulnerability to coastal storms. The data provided can help coastal communities in their hurricane preparedness activities.

The project, managed by NCDDC, provides hurricane-related data sets that can be used to determine potential storm surge inundation, inland flooding, and wind decay for a particular area. Demographic, infrastructure, and facility data are included to determine possible impacts to the local community.

Geographic Information System-based tools are provided to help users work with the data on their own systems. The Coastal Risk Atlas has expanded coverage along the Southeastern coast of the United States, and data are now available for Georgia, Mississippi, Southeast Louisiana, Texas, and most of Alabama and Florida.

Please visit: <http://www.ncddc.noaa.gov/cra>



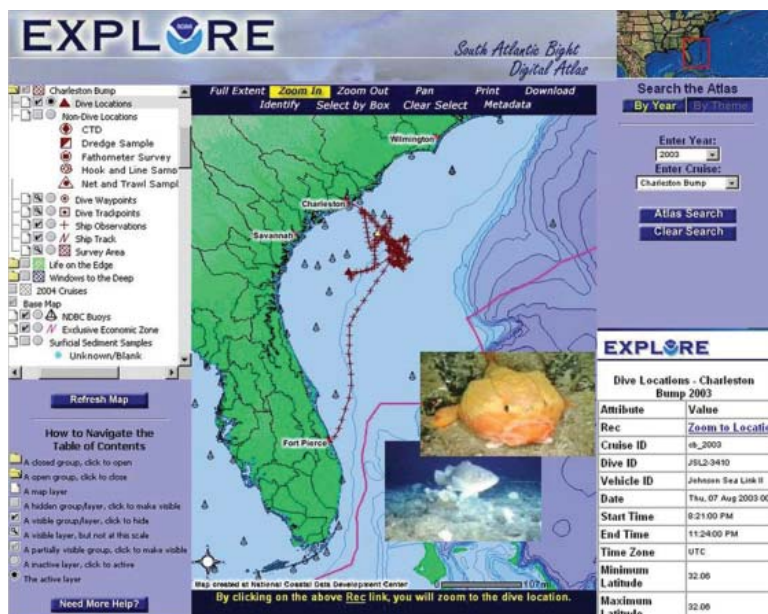
The Coastal Risk Atlas provides hurricane-related data sets that can be used to determine potential storm surge inundation, inland flooding, and wind decay for a particular area.

Cruise Information Management System: Making Ocean Exploration Easily Accessible

NCDDC is working with NOAA's Office of Ocean Exploration (OE) and other NOAA partners to develop a unique, end-to-end data management system for OE data collections. Once fully operational, the Cruise Information Management System (CIMS) will monitor research proposals, streamline at-sea data collection, reduce the overall data management burden, and ensure data accessibility in near real-time and in the future.

CIMS automates the creation of Federal Geographic Data Committee metadata from expedition information, thus ensuring interoperability through compliance with national standards. Once documented, data may also be geospatially enabled. Data discovery through multiple access points is possible, through the user's choice of a standard metadata catalogue search, the OE Digital Atlas Geographic Information System (GIS), the NOAA Central Library Video Data Management System, or the National Oceanographic Data Center's Ocean Archive System.

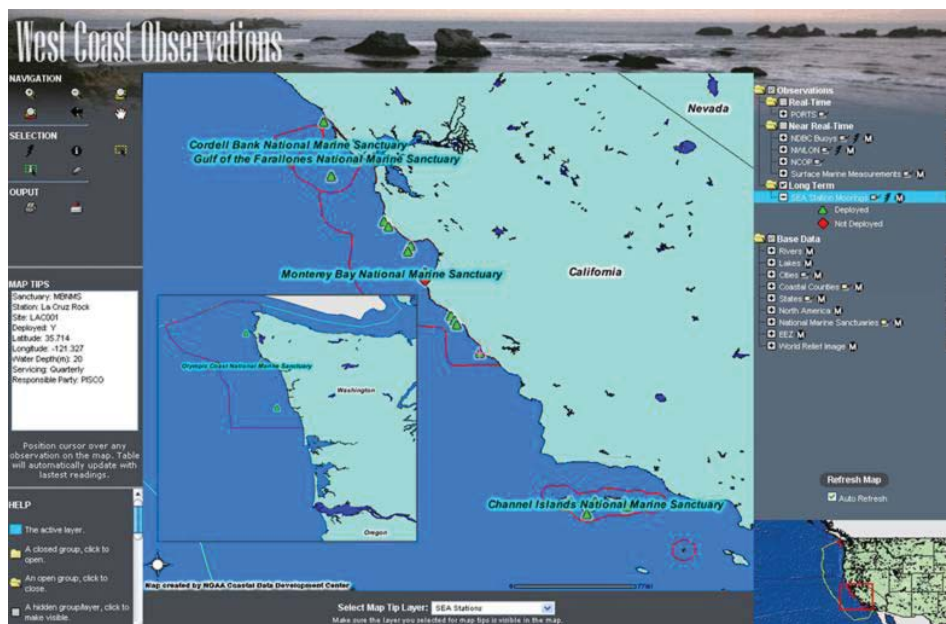
Please visit: <http://www.ncddc.noaa.gov/ocean-exploration/Home>



The Digital Atlas is an online GIS mapping application that allows Internet users to query data geospatially, by date or exploration theme.

West Coast Observing System: Observing in Support of Living Resources

In accordance with the National Marine Sanctuary Program goals for adopting a system-wide approach to resource monitoring, NCDDC partnered with the National Marine Sanctuary Program Office and other agencies to develop



This map shows the location and configuration of the 23 new instrument moorings installed within four of the five West Coast sanctuaries as part of the West Coast Observing System. Ocean temperature, current speed, oxygen, salinity, and fluorometry data are collected, disseminated, and archived.

the West Coast Observing System (WCOS). The primary WCOS objective was to develop a system to make West Coast National Marine Sanctuary Program monitoring data accessible via the Internet in a format compatible with the Integrated Ocean Observing System. WCOS project partners developed a three-pronged approach to meet this objective: in situ observations, information delivery, and technology development.

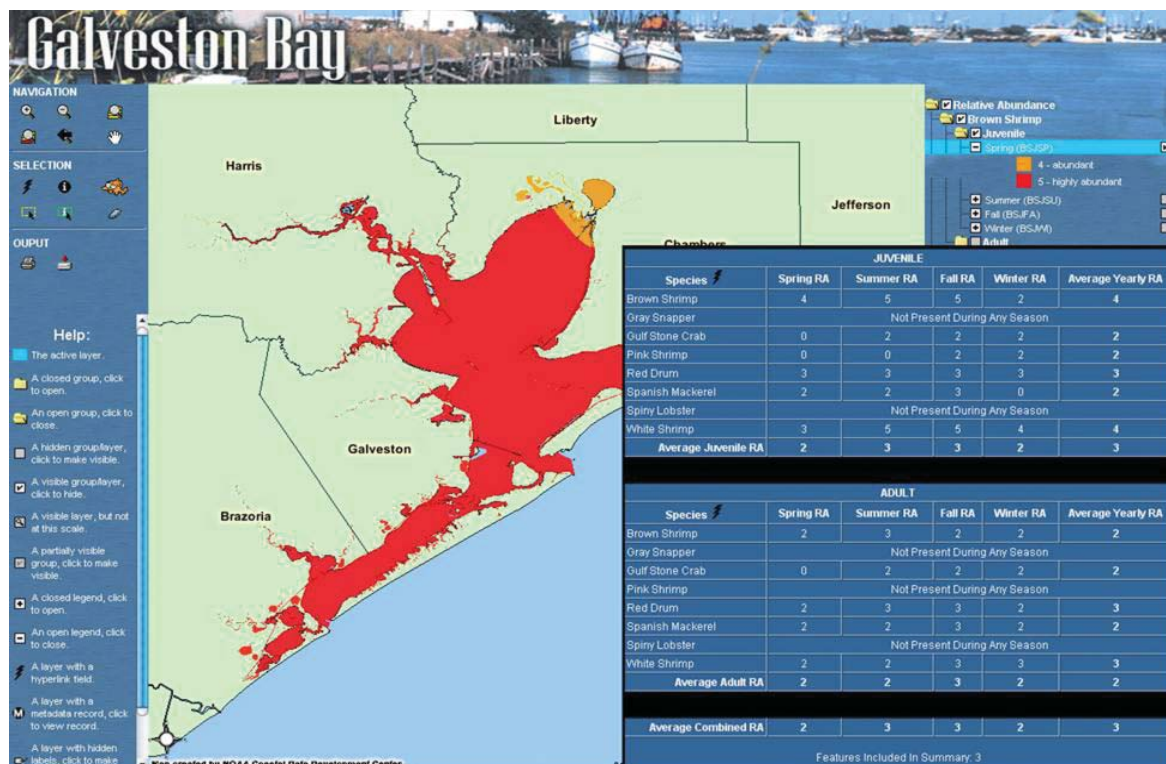
NCDDC developed automated systems and processes for moving data from field collection sites to final archive locations. As part of the automated process, Federal Geographic Data Committee metadata records are created and published, and multiple points of Internet data access are supported. A guided search interface provides Internet users with a simple tool to discover, visualize, and download WCOS data in compliance with OPeNDAP (the open-source project for a network data access) standards. This may be accessed directly at: <http://portal.ncddc.noaa.gov/wco/>. The Sanctuary Integrated Monitoring Network, which provides access to the WCOS data, is the central site for disseminating data to managers, decision makers, the research community, and the general public. Information is available on topics such as marine mammals, seabirds, shorebirds, and habitats. In addition to the guided search, an Internet map service, metadata search, and other project components are supported.

Please visit: http://www.mbnms-simon.org/sections/obs/nmsp_wco.php

Relative Abundance Tool: Tracking the Abundance of Marine Species

NCDDC developed an interactive Geographic Information System tool for the Galveston Fisheries Laboratory, to determine the relative abundance of species specific to Galveston Bay. The tools draw from the Estuarine Living Marine Resource database, to calculate a statistical average of values for selected features. The statistical analysis can be performed seasonally, and by life stage of each species. The tool, operational on the Internet, can be expanded for other estuaries based on availability of data for those regions.

Please visit: http://www.ncddc.noaa.gov/website/NMFS_Galveston/viewer.htm



This map and associated table show the relative abundance assigned values for each of the eight species in Galveston Bay, according to life stage and season. The values are based on: 0=none; 2=rare; 3=common; 4=abundant; 5=highly abundant.

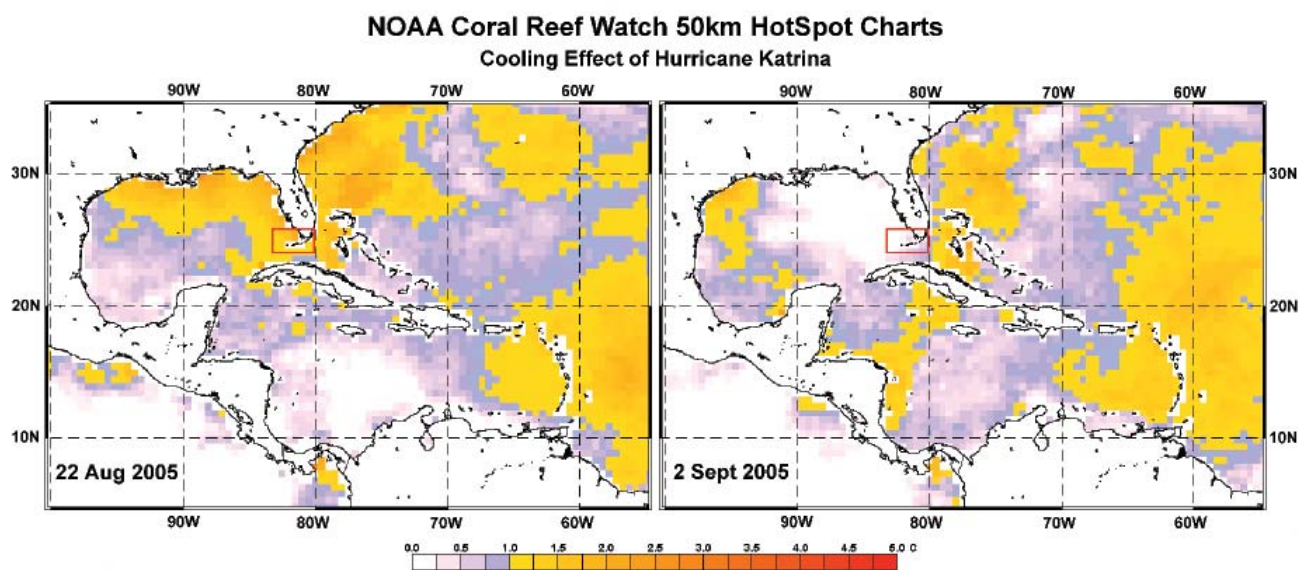
Satellite Bleaching Alerts Help Predict Stress in Coral Reefs

Coral bleaching is a problem plaguing reefs around the world. Corals “bleach,” or lose the algae that live in their tissues, when exposed to severe stress, usually high ocean temperatures. If the problem is severe enough, bleached corals will die, damaging the entire ecosystem.

The NOAA Coral Reef Watch (CRW) released a new operational satellite warning product for monitoring coral reef health in 2005. NOAA’s CRW Satellite Bleaching Alert (SBA) system is an automated coral bleaching e-mail alert system designed to monitor the status of thermal stress that is conducive to coral bleaching via the use of the CRW global satellite near real-time HotSpot suite of products.

The SBA was developed by the NOAA CRW satellite team as a tool for coral reef managers, scientists, and other interested people. The SBA became operational in July 2005. The alert messages are currently available online by subscription for 24 coral reefs around the world.

Please visit: <http://coralreefwatch-satops.noaa.gov/SBA.html>



There are five status levels of thermal stress to corals: No Stress, Bleaching Watch, Bleaching Warning, Bleaching Alert Level 1, and Bleaching Alert Level 2. These levels are defined in terms of CRW HotSpots (shown) and Degree Heating Weeks.

Coral Reef Virtual Library Consolidates Resources

Scientists interested in Coral Reef literature can now find it all in one place. The Coral Reef Information System (CoRIS) team worked with employees at the Pacific Island Fisheries and Science Center in Honolulu to start the process of archiving digital coral reef video files. The metadata will be recorded, video clips will be created, and all will be made available through three online systems: CoRIS, the NOAA Library and Information Data-log, and the National Oceanographic Data Center’s Ocean Archive System. The CoRIS Coral Reef Library pages are being redesigned to provide an integrated search of the entries in the NOAA Library catalog of interest to CoRIS and the Coral Reef Virtual Library. The Coral Reef Virtual Library is a



Coral reef in the Caribbean Sea.

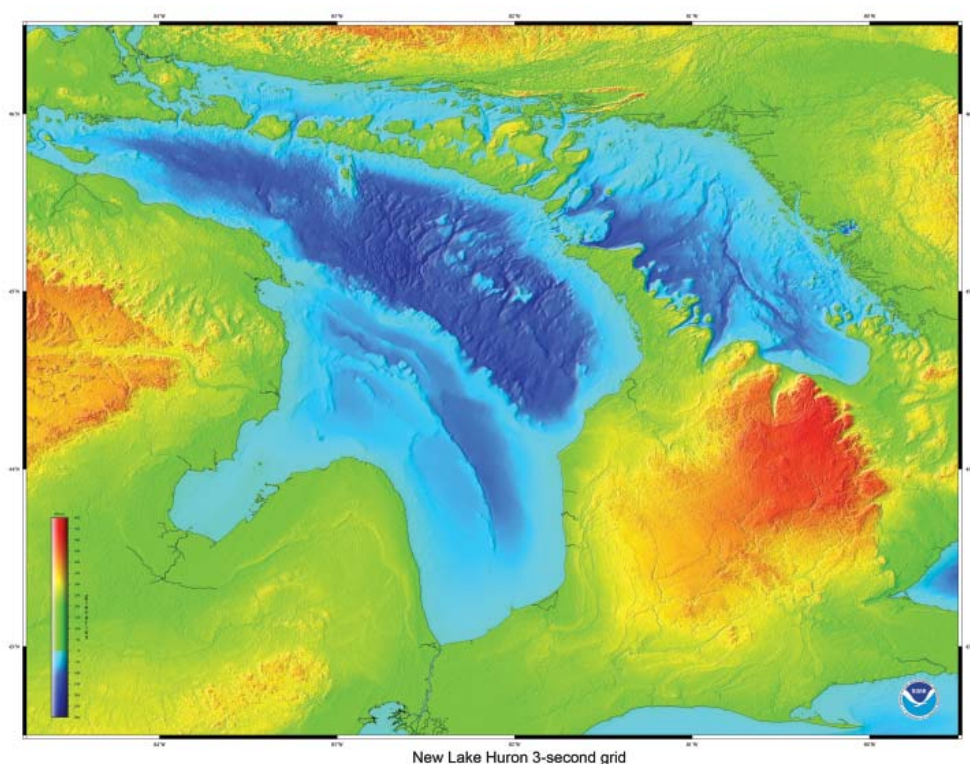
collection of Web sites, journal articles, and other publications of interest to the Coral Reef Program which were not available from the NOAA Library. Due to enhancements, Web statistics show a growing interest in NOAA's coral reef data and information.

Please visit: <http://www.coris.noaa.gov/library/welcome.html>

First Lake-wide Compilation of Bathymetric Contours for Lake Huron Completed

The National Geophysical Data Center, in collaboration with the Great Lakes Environmental Research Laboratory and the Canadian Hydrographic Service (CHS), has completed the first lake-wide compilation of bathymetric contours for Lake Huron. Using data from both the National Ocean Service Hydrographic Database and the CHS, contours were generated at a variety of scales ranging from 1:1000 to 1:50000 with a variable contour interval (1, 5, or 10 meters). The Lake Huron bathymetric contours are available online through the interactive map server from a Web link. In addition to Lake Huron, contours are also available for Lakes Michigan, Erie, and Ontario.

Please visit: <http://www.ngdc.noaa.gov/mgg/greatlakes/huron.html>

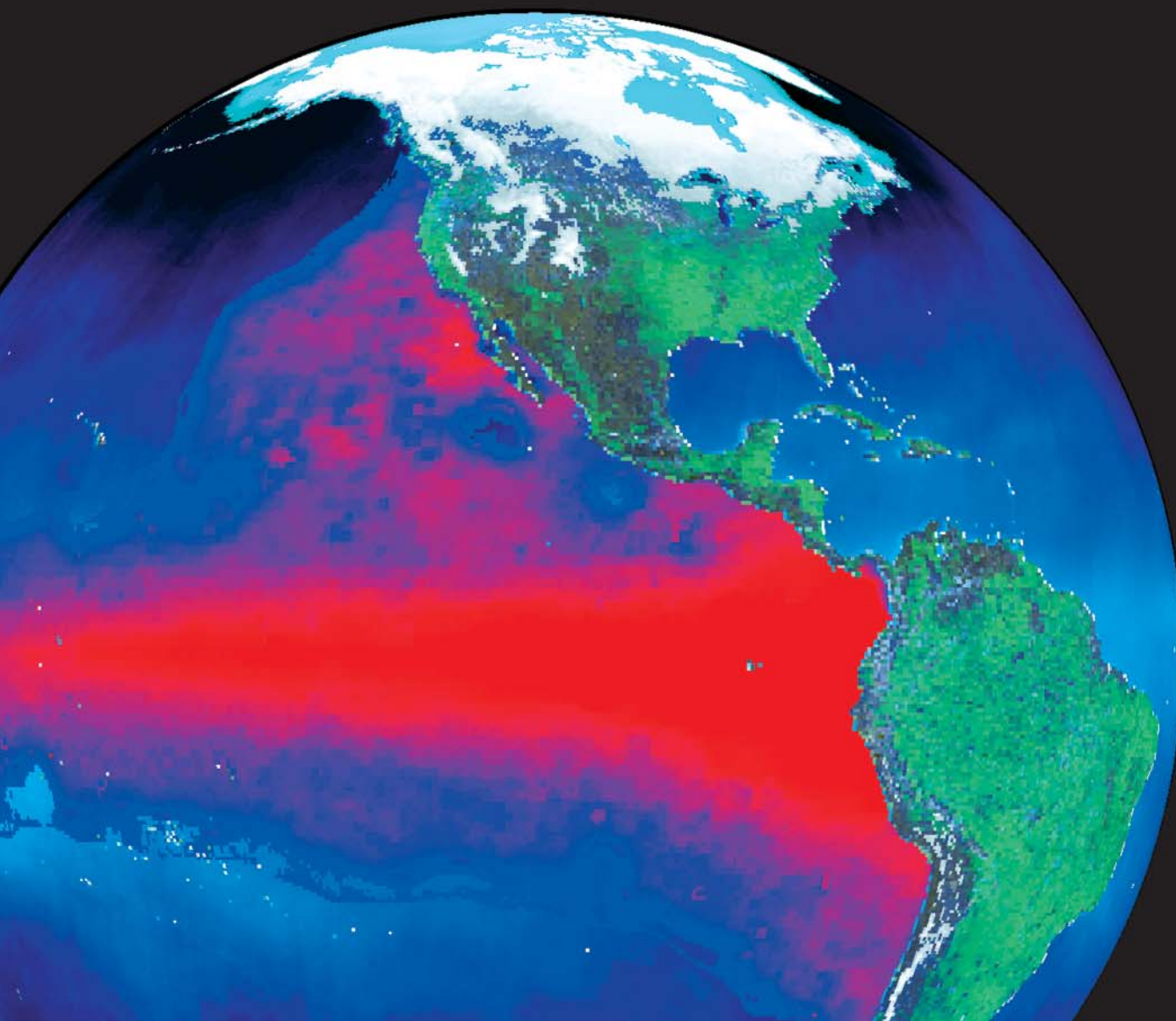


The Lake Huron bathymetric contours are available online.

GOAL 2:

Understand climate variability and change to enhance society's ability to plan and respond

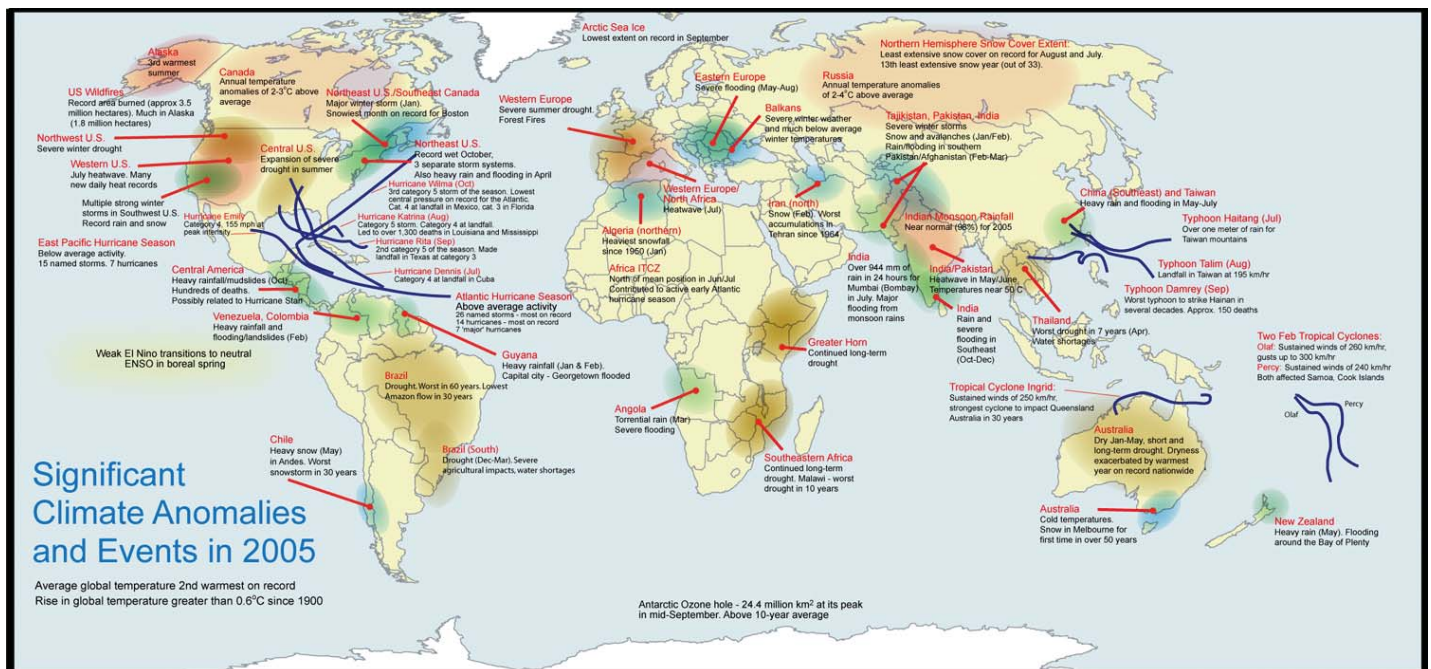
The world community has learned to contend with some aspects of the climate's natural variability. However, major climatic events, combined with the stresses of population growth, economic growth, and land-use practices, can have serious consequences on society. For example, the 1997-98 El Niño had a \$25 billion impact on the U.S. economy, including property losses and crop losses. Long-term drought leads to increased and competing demands for fresh water with related effects on terrestrial and marine ecosystems, agricultural productivity, and even the spread of infectious diseases. NESDIS maintains data stewardship to provide researchers, policy makers, and the public with critical data on the climate. NESDIS also contributes data and information on climate variability and change and their effect on commerce.



State of the Climate Report for 2005 Issued

The National Climatic Data Center issued the Web-based Annual State of the Climate Report for 2005 on December 15. This report places the climate of the year into historical perspective. It provides information on global and U.S. temperatures and precipitation including analyses of trends and extremes using an array of long-term records from land and ocean surface observations, as well as satellites. This report also has a summary of hurricane and tropical cyclone activity, including the record-breaking season in the North Atlantic Basin. Information on El Niño and severe drought and the Nation's active wildfire season are included.

The global annual temperature for 2005 for combined land and ocean surfaces is very close to the record global temperature that was established in 1998 under the influence of an extremely strong El Niño episode. There has been no such El Niño event in 2005, but rather, unusual warmth across large parts of the globe throughout the year. Significant global events in 2005 include: the most destructive hurricane on record to hit the United States, severe drought in parts of southern Africa and the Greater Horn of Africa, extreme monsoon-related rainfall in western India including a 24-hour rainfall total of 37.1 inches in Mumbai, the worst drought in decades in the Amazon River basin, severe drought in large parts of western Europe, and a record warm year in Australia.



Significant climate events in 2005.

The 2005 annual average temperature for the United States is expected to be the 20th warmest on record. The Atlantic hurricane season was the most active on record, with 26 named storms, including 14 hurricanes, forming from June through November. Six named storms made landfall along the U.S. Gulf Coast, including one Category 4, Katrina, and three Category 3 hurricanes, Dennis, Rita, and Wilma. The costliest hurricane in U.S. history (Hurricane Katrina) led to more than 1,300 deaths along the central U.S. Gulf Coast. Wilma made landfall as a Category 3 storm along the Gulf Coast of Southern Florida.

Please visit: <http://www.ncdc.noaa.gov/oa/climate/research/2005/ann/ann05.html>

Estimates of Ocean Heat Content Updated

The Ocean Climate Laboratory of the National Oceanographic Data Center has updated their estimates of post-1955 ocean heat content. The new work is based on an additional 1.7 million historical and modern temperature profiles not previously used. The long-term ocean warming trend previously reported continues and, in conjunction with climate-system models, suggests that the warming trend is due to the increase of greenhouse gases in the Earth's atmosphere.

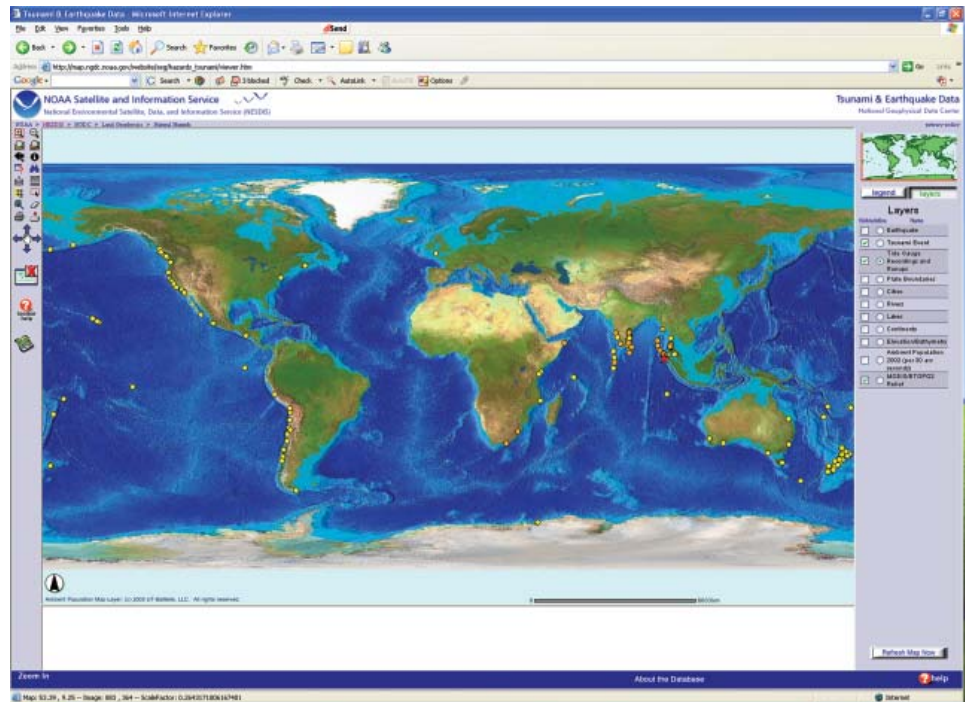
Results documenting interdecadal variability of salinity, steric sea level, and oxygen since 1955 have also been published during the past year.

Please visit: <http://www.nodc.noaa.gov/OC5/>

New Tsunami Web Pages Focus on the Indian, Pacific, and Atlantic Oceans

The National Geophysical Data Center (NGDC) provides scientific expertise, archive for, and Web access to the global historic tsunami event and run-up data, significant earthquake data, geologic hazards damage photo archive, volcanic ash advisories, and related data. After the December 2004 Indonesia tsunami, NGDC received an unprecedented 60,000 visits to the Hazards Web site in one week. NGDC created tsunami topic pages focusing on the Indian, Pacific, and Atlantic Oceans. These pages provide easy access to information on past tsunami events affecting these areas. This information is part of a continuing program to support the interests of engineers, oceanographers, seismologists, and the general public. Working with the Office of Satellite Data Processing and Distribution, NGDC completed the rescue of and Web access to historic volcanic ash advisory data. In addition to the volcanic ash data, the Natural Hazards group at NGDC also now archives and distributes NOAA's Bottom Pressure Recorder data, supporting NOAA's newest program in tsunami.

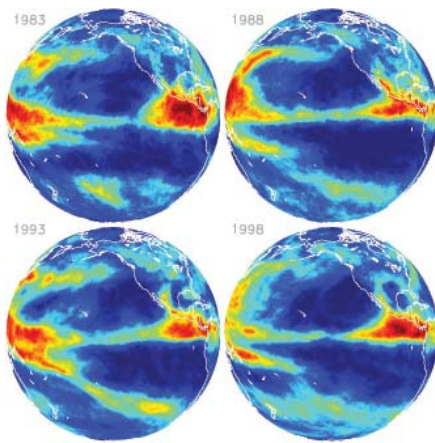
Please visit: <http://www.ngdc.noaa.gov/spotlight/tsunami/tsunami.html>



Reprocessing Satellite Data for Climate Studies

Since the launch of the first meteorological satellite in 1960, the record of environmental observations from satellites has grown long enough to study recent climate change. However, reprocessing the collected data is generally necessary to ensure accurate intersatellite calibration, which ensures the quality and continuity of long-term climate records.

The Advanced Very High Resolution Radiometer (AVHRR) aboard NOAA's polar-orbiting environmental satellites is one sensor that can provide valuable information on clouds, surface properties, and even winds. New climate



The inter-annual variability in high cloud averaged over the month of July for 1983, 1988, 1993, and 1998. Areas with large amounts of high cloud are red; areas with less high cloud are blue.

products from AVHRR data include a higher resolution global vegetation index, a climatology of polar winds, and a new sea surface temperature climatology. In addition, a new version of the AVHRR Pathfinder Atmospheres Extended (PATMOS-x) is being generated that will provide atmospheric climate records of cloud and aerosol properties. Reprocessed satellite data will greatly enhance the potential of using the AVHRR for decadal climate studies. These studies enable scientists to examine fundamental processes responsible for decadal climate variability and change and assess whether changes are due to human influences or natural variability.

Please visit: http://cimss.ssec.wisc.edu/model/ASPB/ASPB_main.html

Global Data Easily Accessible Online

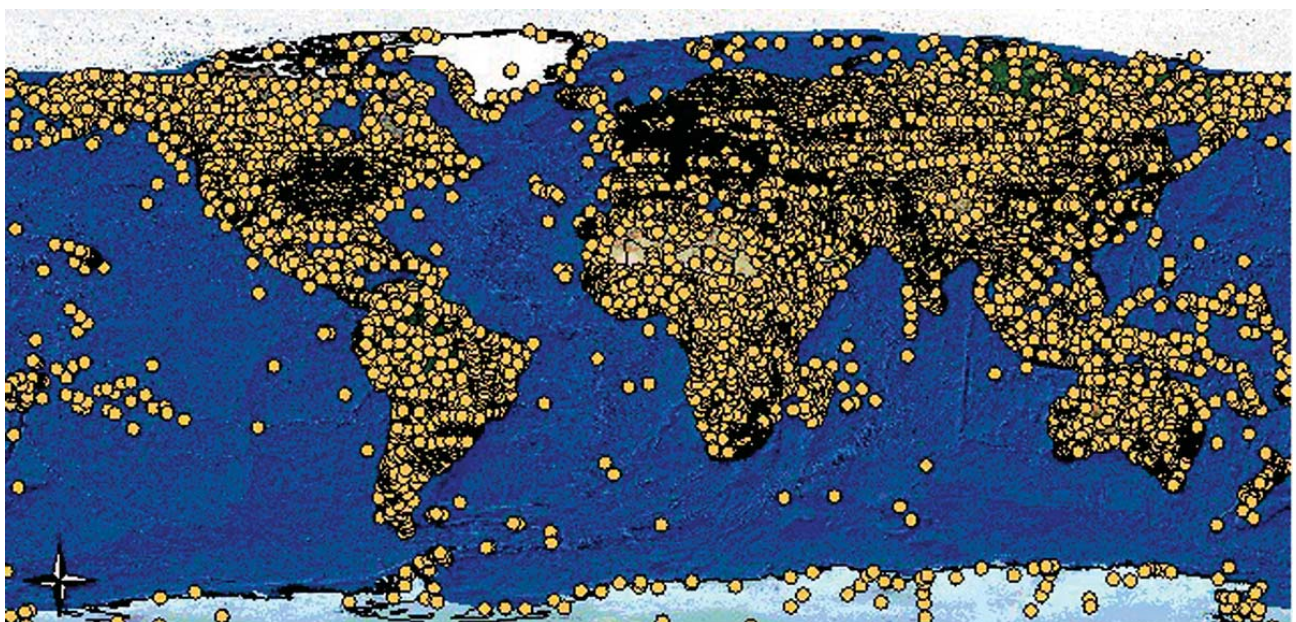
The National Climatic Data Center's (NCDC's) Climate Data Online (CDO) system now provides easy access to information about global surface weather, marine weather, and climate. Users can search for data by country, region, data set, station name, and by map. Data are available for

the full period of digital record, along with daily updates.

NCDC, in conjunction with its Federal Climate Complex partners (U.S. Air Force and Navy), developed the global Integrated Surface Data (ISD—formerly Integrated Surface Hourly) database to address a pressing need for an integrated global database of surface climatological data. ISD is gradually being expanded to incorporate additional sources of surface data. The period of record is 1901 to present, and over 100 original sources are already incorporated into this dataset. The CDO system allows users to select data by region, country, state, and station and for any specified time period.

The International Comprehensive Ocean Atmosphere Data Set (ICOADS) is comprised of data from as early as 1784 to the present and includes data integrated from numerous sources. CDO allows users to select data by latitude-longitude area for any desired time period. Output formats include the often-used common marine format, a space-delimited format, and the ICOADS archive format.

Please visit: <http://cdo.ncdc.noaa.gov/CDO/cdo>



Example of hourly global surface data.

Images and Publications Placed Online

The National Climatic Data Center (NCDC) has placed thousands of previously inaccessible publications and images online for the public. The Images and Publications System now provides access to five serial publications for the full period of record for each publication: Local Climatological Data; Climatological Data; Hourly Precipitation Data; Monthly Climatic Data for the World; and Storm Data. The system also provides access to Cooperative climate data forms completed by voluntary observers throughout the country. The Cooperative station forms reach as far back as the early 1800s for some locations, extending forward to 2005, with over 8,000 stations now active. The forms, which contain the original (often hand-written) data from the voluntary observers, are scanned and provided as PDF images. Many additional forms and images from historical collections are being added to this system.

Please visit: <http://www7.ncdc.noaa.gov/IPS/>

NCDC hand-written observations from 1916.

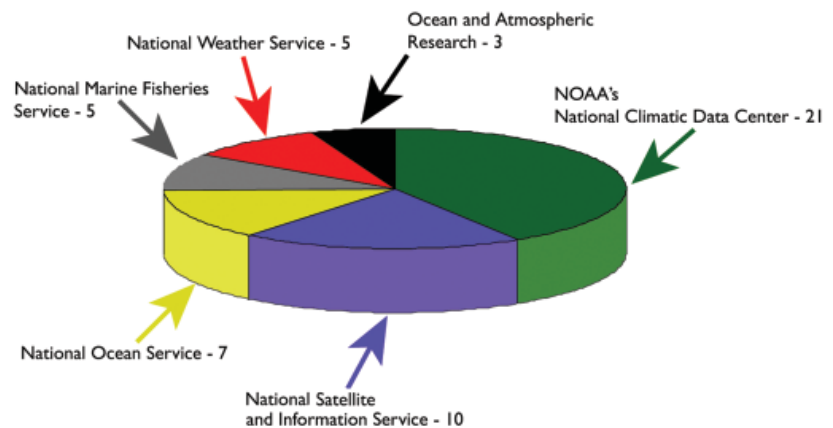
Historical Data Previously in Hard Copy Now Online

Researchers and the public now have easy online access to data once restricted to file cabinets and basement storage, thanks to the Climate Database Modernization Program. In its sixth year, the program expanded in all NOAA operational line offices with services to make climate and environmental data and information more accessible and easier to use. Entering surface and marine weather observations into a computer database extended the historical period of record, and the data are used in new re-analysis projects and climate studies. Historical data from Mexico and Africa are available for global climate studies.

Other historical data rescue activities provide access to data that were previously available to only a few people. These rescue activities include data from the National Marine Fisheries Service (lightship observations, fish egg and larvae, historical plankton); National Ocean Service (shoreline charts, nautical charts, water level gauges); and Office of Oceanic and Atmospheric Research (hurricane reconnaissance, European ship logbooks).

Please visit: <http://www.ncdc.noaa.gov/oa/climate/cdmp/cdmp.html>

FY 05 Tasks by Organization



Total number of NOAA CDMP projects reached an all-time high (50 plus in 2005)

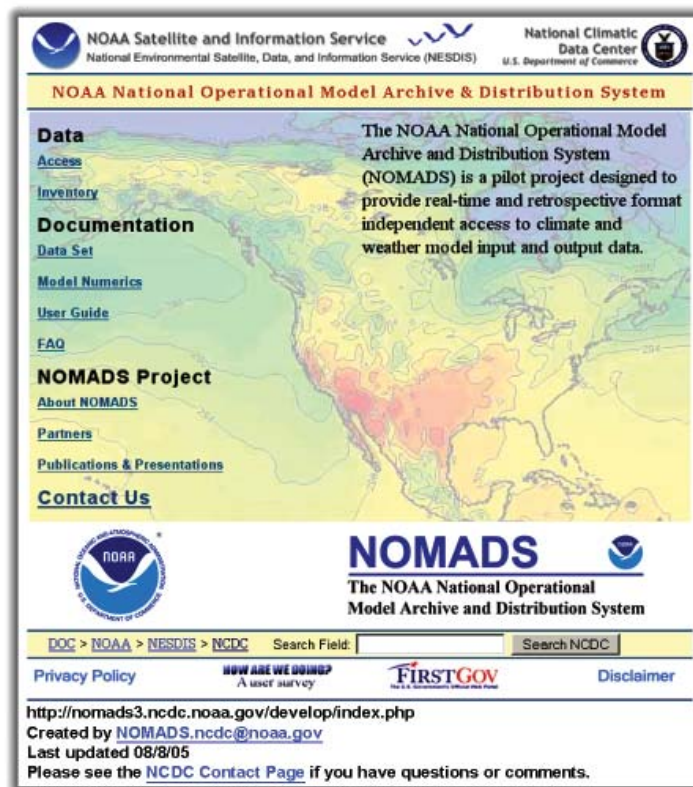
The number of projects of the NOAA Climate Database Modernization Programs for 2005 is shown.

National Operational Model Archive and Distribution System Provides Access to Numerical Weather Prediction Models

To address a growing need for remote access to high-volume numerical weather prediction and global climate models and data, the National Climatic Data Center, along with the National Centers for Environmental Prediction (NCEP) and the Geophysical Fluid Dynamics Laboratory, initiated the NOAA National Operational Model Archive and Distribution System (NOMADS) project.

NOMADS uses established and emerging technologies to provide access and integrate model and other data. NOMADS will promote product development within the ocean, weather, and climate communities so that researchers can study multiple Earth systems.

Please visit: <http://nomads.ncdc.noaa.gov>



The NOMADS Web site provides access to high-volume numerical weather prediction and global climate models and data.

Powerful New Tool Performs Intersatellite Instrument Calibration

NESDIS has developed a powerful method to quantify the intersatellite calibration biases for certain instruments on board the polar-orbiting operational environmental satellites (POES). Quantifying the calibration biases for radiometers on board the satellites will permit the construction of high-quality climate data records for climate monitoring and re-analyses and for numerical weather prediction.

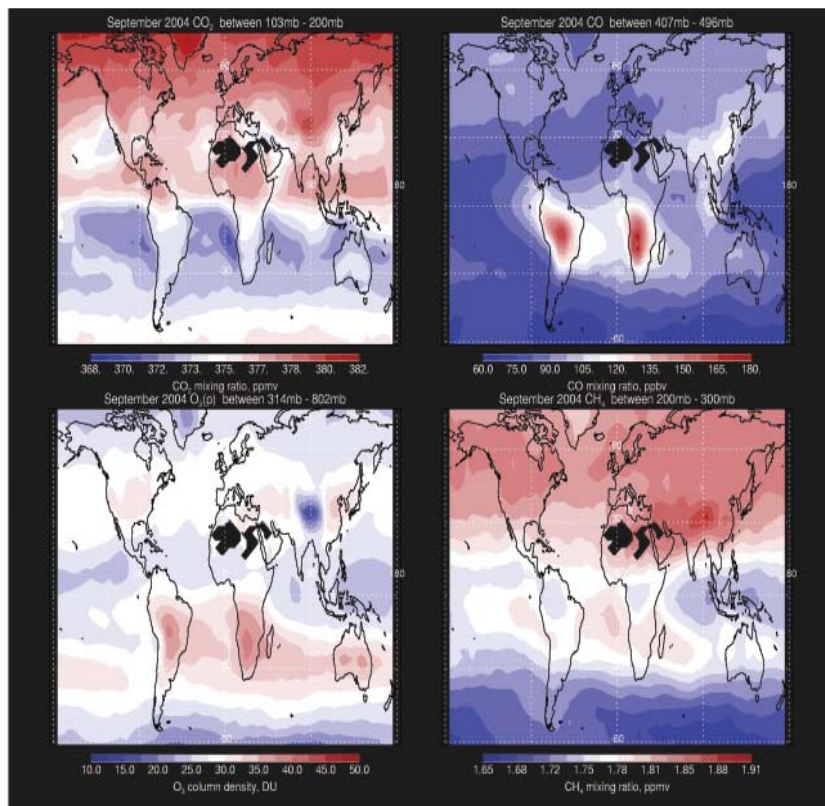
The method used to determine the bias of one instrument with respect to another is based on Simultaneous Nadir Overpass (SNO) observations. A SNO occurs when the nadir points of two polar-orbiting satellites cross each other within a few seconds. Such crossings take place in Polar Regions where the satellites' orbits cross. At each SNO, radiometers from each pair of satellites view the same place at the same time at nadir, thus eliminating uncertainties associated with the atmospheric path, view geometry, and time differences. Their measurements should be identical. By comparing the measurements of the two satellites during SNOs, it is possible to determine the bias of one instrument with respect to the other.

Please visit: <http://www.orbit.nesdis.noaa.gov/smcd/spb/calibration/icvs/index.html>

Emerging Product Suite Supports Carbon Cycle Science

Carbon monoxide is not only a contributor to atmospheric greenhouse effect, but also an important component of air pollution and a measure of biomass burning. To track this gas, NESDIS investigators from the Office of Research and Applications are working with the NOAA Climate Program Office's Global Carbon Cycle Program. This team has developed a suite of greenhouse gas products from NASA's Atmospheric Infrared Sounder (AIRS). The team is producing daily experimental global greenhouse gas maps that will enable researchers to more clearly define the Earth's carbon cycle, a necessary prerequisite for understanding global climate change.

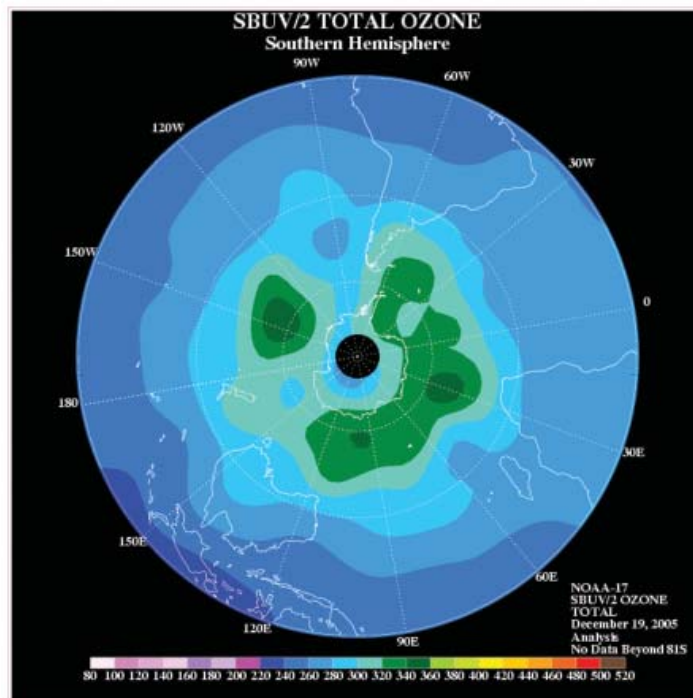
Please visit: <http://www.ogp.noaa.gov/mpe/gcc/>



These are the first monthly maps of greenhouse gases from satellites. Clockwise from upper left: CO₂, CO, O₃, CH₄. Data are derived from NASA's AIRS instrument.

NOAA and NESDIS Monitor 2005 Antarctic Ozone Hole

NESDIS scientists from the Office of Research and Applications, working closely with scientists at NOAA's Climate Prediction Center and Climate Monitoring Diagnostics Laboratory, continue to monitor the Antarctic ozone hole with satellite-based instruments and ground-based ozonesondes.



The Southern Hemisphere total ozone analysis from NOAA-16 shows the status of the current ozone hole. In September 2005 the area covered by extremely low total ozone values of less than 220 Dobson Units (DU), defined as the Antarctic "ozone hole" area, reached a maximum size greater than 24 million square kilometers. Values below 220 DU were not observed in the Antarctic before the dramatic increases of atmospheric chlorine compounds in the 1980s.

Stratospheric ozone plays a beneficial role by absorbing most of the biologically damaging ultraviolet sunlight (UV-B), allowing only a small amount to reach the Earth's surface. The absorption of ultraviolet radiation by ozone creates a source of heat, which actually forms the stratosphere. Ozone thus plays a key role in the temperature structure of the Earth's atmosphere. Without the filtering action of the ozone layer, more of the Sun's UV-B radiation would penetrate the atmosphere and would reach the Earth's surface.

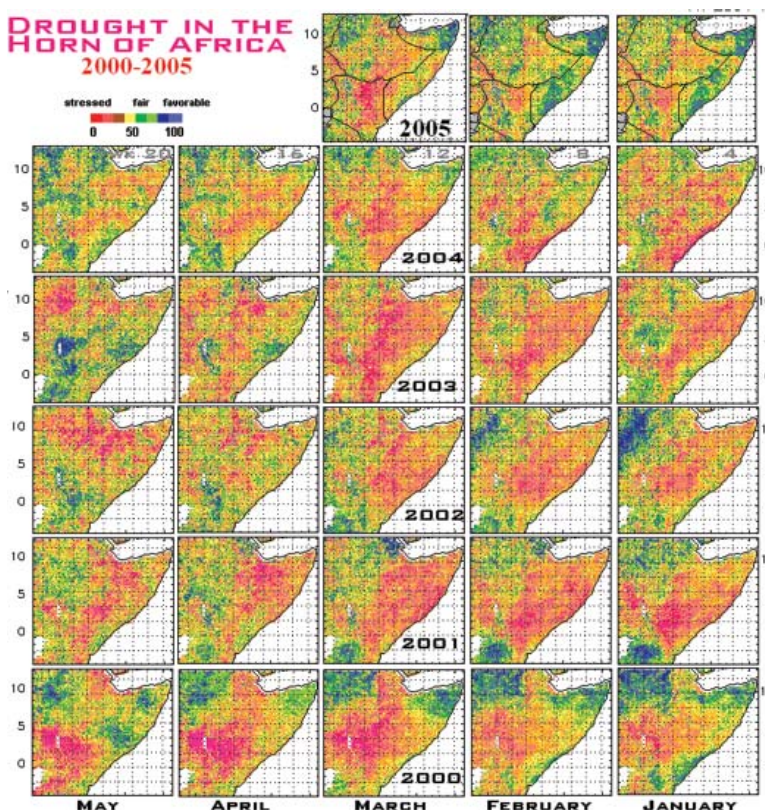
The 2005 Antarctic ozone hole formed earlier in the year than the average for the past ten years and, at its maximum, covered one of the largest areas seen over the past ten years. This is consistent with continued elevated but slowly declining levels of stratospheric chlorine and this year's dynamics. The polar vortex, the area in which cold polar air is trapped by the very strong winds of the Polar Night Jet, was stable and had a large area with temperatures cold enough for heterogeneous chemical reactions causing ozone destruction.

Please visit: <http://www.cpc.ncep.noaa.gov/products/stratosphere/polar/polar.shtml>

Severe Drought Detected in the Horn of Africa

In 2005, NOAA satellites detected areas of stifling drought conditions in parts of Kenya, Ethiopia and Somalia for the sixth year in a row. These conditions left the region with threats of starvation, water shortages, widespread crop losses and disease outbreaks. The 2005 drought gripped the region, known as the Horn of Africa, in January and continued to impact areas of eastern Kenya, southeastern Ethiopia, and northern and central Somalia. At stake was the minor agricultural season, which runs from March through May, that normally provides enough food to sustain the population through the autumn when the next harvest becomes available. The satellite drought index is based on observations from the Advanced Very High Resolution Radiometer aboard NOAA's polar-orbiting satellites.

Please visit: <http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/>



Vegetation conditions in the Horn of Africa from January – May for the years 2000 to 2005. Drought conditions are indicated by red shading.

New Stations Installed in U.S. Climate Reference Network

The U.S. Climate Reference Network (USCRN) is a NOAA-sponsored network managed by the National Climatic Data Center. The network is being implemented to provide climate data for climate monitoring and other applications. The long-term observations that will be provided can be coupled with existing observations for the study of climate change. During the year, the USCRN established seven stations in the contiguous 48 states. Two were installed in Alabama and one each in Colorado, Florida, Kansas, Missouri, and North Carolina. There were also new stations installed in Alaska and Hawaii that are part of the Global Climate Observing System. During the year a Canadian version of a Climate Reference Network (CRN) station site was installed jointly with Canada at the Earth Resources Observation System Data Center of the U.S. Geological Survey in Sioux Falls, South Dakota. USCRN will be complete when more than 40 additional stations are deployed across the continental United States by 2009.

Please visit: <http://www.ncdc.noaa.gov/oa/climate/uscrn/>

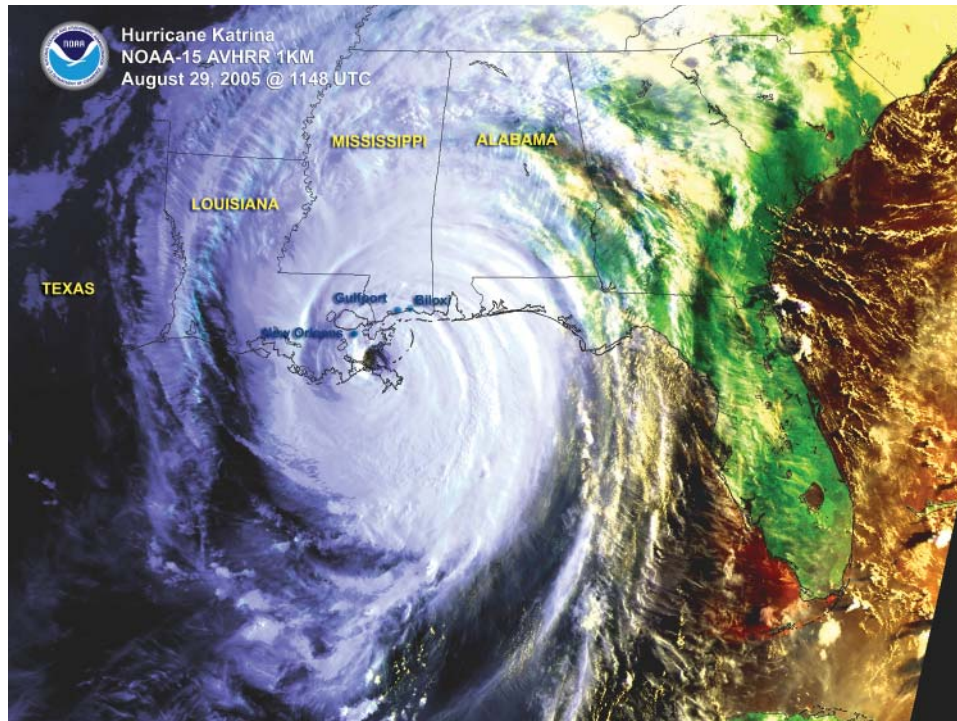
GOAL 3:

Serve society's needs for weather and water information.

Nearly one third of the U.S. economy (around \$3 trillion) is sensitive to weather and climate. Floods, droughts, hurricanes, tornadoes, tsunamis, and other severe weather events cause \$11 billion in damages each year in this country. NOAA and our partners seek to provide decision makers with key observations, analyses, predictions, and warnings for a range of weather and water conditions, including those related to water supply, air quality, and space weather. NESDIS is deploying new multi-use observing systems and implementing more research findings into NOAA operations with less transition time. NESDIS is providing real-time and near real-time data to assist forecasters and water managers.

NESDIS Monitors Hurricanes During Active 2005 Season

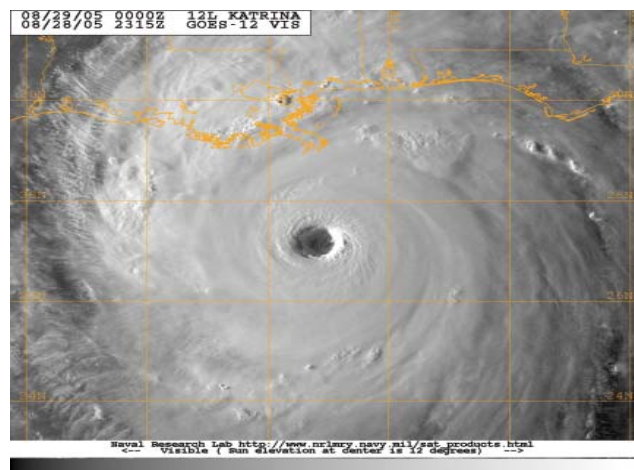
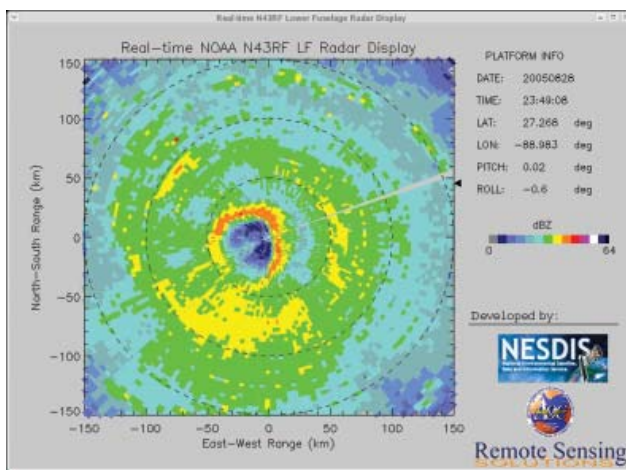
The Office of Satellite Operations provided extensive, real-time support to Federal and local agencies in detecting and analyzing significant hurricane activity during the 2005 season. Satellite operations were reconfigured to provide rapid-scan, 5-minute, high-resolution imaging, thus providing significantly more images than routine scanning. During Hurricane Katrina, satellite operations had a 99.2 percent delivery rate and during Hurricane Rita, a 100 percent delivery rate.



A view of Hurricane Katrina from NOAA-15 on August 29, 2005.

Hurricane Katrina Radar Data Transmitted in Real-time

For the first time, real-time lower fuselage radar data from the NOAA P-3 aircraft was brought into the National Hurricane Center via a satellite phone data link as the P-3 flew through Hurricane Katrina. This was the first step toward the next-generation of real-time transmission of environmental remote sensing data from the NOAA P-3 aircraft. This represents a vast improvement over the Aircraft-to-Satellite-Data-Link system currently used to transmit



This is an image of a lower fuselage radar scan from the NOAA P-3 during a flight through Hurricane Katrina on August 28, 2005. For the first time ever, these data were transmitted off the P-3 and displayed on the ground in real-time. This image depicts the radar reflectivity as seen from the P-3 as it is departing the eye of Katrina toward the Northeast. The eyewall is clearly depicted in the reflectivity image. The image can be compared with a GOES visible image of Katrina from approximately the same time.

limited data off the aircraft for operational use by National Weather Service (NWS). Data collected during hurricanes by these aircraft and from a variety of other sources are fed into numerical computer models to help forecasters predict how intense a hurricane will be and when and where it will make landfall.

This accomplishment represents collaboration among the Ocean Winds program, NOAA Aircraft Operations Center, and Remote Sensing Solutions, Inc. The transmission of even more complex and information-rich data from the NOAA P-3 aircraft and, ultimately, the NOAA Gulfstream IV aircraft, will prove important to operational forecasters and the next generation of NWS numerical weather models. While this year's effort was a demonstration, it sets the stage for significant advancements in the quantity and quality of data that can be made available to assist hurricane forecasters and analysts in their decision-making process.



A NOAA P-3 aircraft took this picture of the eyewall of Hurricane Katrina on August 28.

Please visit: http://www.aoc.noaa.gov/aircraft_lockheed.htm

Satellite Images Show Hurricane Katrina's Disruption of Electrical Power

NESDIS's National Geophysical Data Center has produced nighttime satellite images showing areas of the Gulf Coast without power versus areas with normal lights after the passage of Hurricane Katrina. These nighttime change images are made by comparing an annual composite against data from one night. The composite is produced using predominately cloud-free portions of low-light imaging data acquired by the U.S. Air Force Defense Meteorological Satellite Program over one year.



The composite on the left is made using data from 2004 compared with data from August 30, 2005; the composite on the right is made from the same 2004 data compared with data from September 11, 2005. The clouds are displayed in blue. Red depicts areas without power. As power is restored, the areas in red revert to yellow.

The composite was requested and delivered to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) on September 1 and included in a briefing to the President. FEMA noted that information on the extent of the power outage was difficult to obtain via other means.

Please visit: <http://dmosp.ngdc.noaa.gov/interest/katrina.html>

National Climatic Data Center Produces Hurricane Katrina Report

In the wake of Hurricane Katrina, the National Climatic Data Center issued a special report that provided a summary of the meteorological conditions, impacts, and climatological perspective from this historic storm. The report provides details on the storm, satellite imagery, a history of middle Gulf coast hurricanes, comparisons with Hurricanes Andrew and Camille, and graphs of hurricane frequency, sea surface temperature (SST), and annual accumulated cyclone energy. In addition, the report includes photographs, radar images, and wind shear and SST anomaly maps. The report will thus prove useful to meteorologists, climatologists, historians, and others.

Katrina was one of the strongest storms to impact the coast of the United States during the past 100 years. At one stage, Katrina was a Category 5 storm (in the Saffir-Simpson scale), with wind speeds of 175 mph. At landfall, wind speeds were approximately 140 mph (a strong Category 4 hurricane), minimum central pressure was the third lowest on record at landfall (920mb), and hurricane force winds stretched 120 miles from its center, causing widespread devastation along the central Gulf Coast states.

Please visit: <http://www.ncdc.noaa.gov/oa/climate/research/2005/katrina.html>

Hyperspectral Observations Extend Medium Range Weather Forecasts

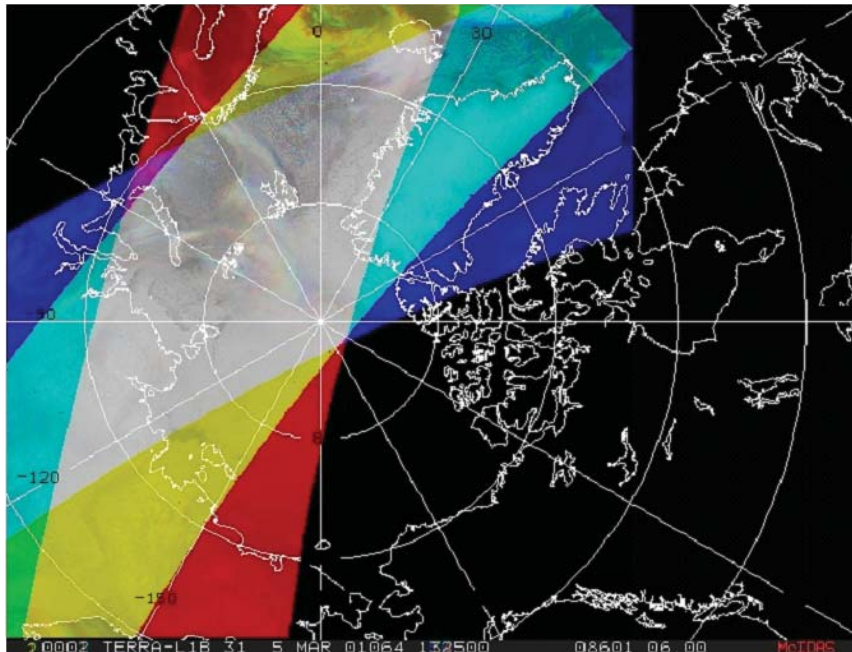
Experimental weather forecasts at the NOAA-NASA-Department of Defense (DoD) Joint Center for Satellite Data Assimilation using NASA's Atmospheric Infrared Sounder (AIRS) radiance observations indicate significant improvements in global forecast skill compared to the operational system without AIRS data. The improvement in forecast skill at six days is equivalent to gaining an extension of forecast capability of about six hours. This magnitude of improvement is quite significant when compared with the rate of general forecast improvement over the last decade. A six-hour increase in forecast range at five or six days normally takes five or six years to achieve at operational weather centers. As a result of these positive impacts, the National Weather Service has begun to assimilate AIRS data in its operational numerical weather prediction model, an integral part of the weather forecast process. AIRS is the first of a new generation of infrared hyperspectral sounding instruments, providing hyperspectral observations measuring atmospheric temperature and moisture profiles with unprecedented accuracy and providing additional information on greenhouse gases.

Please visit: <http://www.jcsda.noaa.gov/>

MODIS Wind Observations Improve Weather Forecasts

The NOAA-NASA-Department of Defense (DoD) Joint Center for Satellite Data Assimilation has shown that wind data derived from NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) observations improve the accuracy of medium range weather predictions. Based on these results, the National Weather Service will start to assimilate these observations in the next upgrade to its global forecast model. The winds are derived using an innovative technique developed by NESDIS researchers. For many years, atmospheric winds have been measured by tracking the movement of cloud and water vapor features in consecutive images from a geostationary operational environmental satellite (GOES). Hovering over the equator, GOES does not see polar areas. The new technique exploits the capability of the polar orbiting MODIS to take snapshots of polar areas only one to two hours apart then uses these images to track cloud and water vapor features. MODIS is the first of a new generation of visible and infrared imagers that will provide improved imaging capabilities.

Please visit: <http://www.jcsda.noaa.gov/>



The different colors show the observation tracks of three consecutive orbits of the MODIS instrument, about 1.5 hours apart, with the white area representing the overlap area of all three orbits. Tests at the Joint Center for Satellite Data Assimilation show that wind observations, obtained from tracking cloud or water vapor features in the images of two or three overlapping orbits, improve medium range weather predictions.

The National Polar-orbiting Operational Environmental Satellite System Completes Reviews

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) Preliminary Design Review (PDR) was successfully completed. The PDR consisted of a thorough review of the entire system design in relation to its performance and interface requirements and concept of operations.

The NPOESS Space Segment completed its spacecraft preliminary design. Instrument performance was validated for the Cross-track Infrared Sounder, which will provide improved measurements of the temperature and moisture profiles in the atmosphere. Forecasters use temperature and moisture sounding data in advanced numerical weather prediction models to improve both global and regional predictions of weather patterns, storm tracks, and precipitation. The NPOESS Ground Segment has also completed PDR.

Please visit: <http://www.ipo.noaa.gov/>

GOAL 4:

Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation.

The U.S. economy depends on safe and efficient transportation systems. The injuries, loss of life and property damage from weather-related accidents cost an average of \$42 billion annually. In the airline industry, NESDIS data are used to determine the safety of airline routes and flight plans. In the marine industry, NESDIS data reduce the risk of damage to ships and cargo. For surface transportation, NESDIS data are used to issue weather forecasts and warnings. NESDIS also administers the Commercial Remote Sensing Licensing and Enforcement Program, and the Search and Rescue Satellite-aided Tracking system.



195 Persons Rescued in United States Using Search and Rescue Satellite Aided Tracking

NESDIS continues to lead a coordinated United States effort to provide satellite Search and Rescue Satellite Aided Tracking (SARSAT) capabilities to detect and locate mariners, aviators, and recreational enthusiasts in distress anywhere in the world, at any time, and in almost any condition. In 2005, in the United States, the SARSAT program contributed to the rescue of 195 persons at sea, in aviation accidents, and in remote areas. Older 121.5 MHz emergency beacons will be phased out by 2009 and switched to 406 MHz beacons. Anyone planning to buy a new beacon may wish to take this information into account. The number of users of the new 406 MHz beacons in 2005 was 16 percent above those in 2004.

SARSAT cooperates internationally to provide the worldwide SARSAT capabilities under the umbrella of the international Cospas-Sarsat Program. This past year, NESDIS helped facilitate the relocation of the international Cospas-Sarsat Secretariat from London to Montreal. The move will ensure that the organization is afforded the same privileges and immunities as other international organizations, reduce operating costs by approximately 15 percent, and improve the operating financial reserve of the organization.

The SARSAT program has implemented several new communication paths to reduce the high cost of domestic and international communications. The program has implemented the use of the Aeronautical Fixed Telecommunication Network and the Internet to reduce the overall cost of communications, while retaining the required security and reliability.

Please visit: <http://www.sarsat.noaa.gov/>



The U.S. Coast Guard responds to a distress signal to save a crew from a stranded vessel.

NESDIS Provides Remote Sensing Support to U.S. Environmental and Transportation Needs

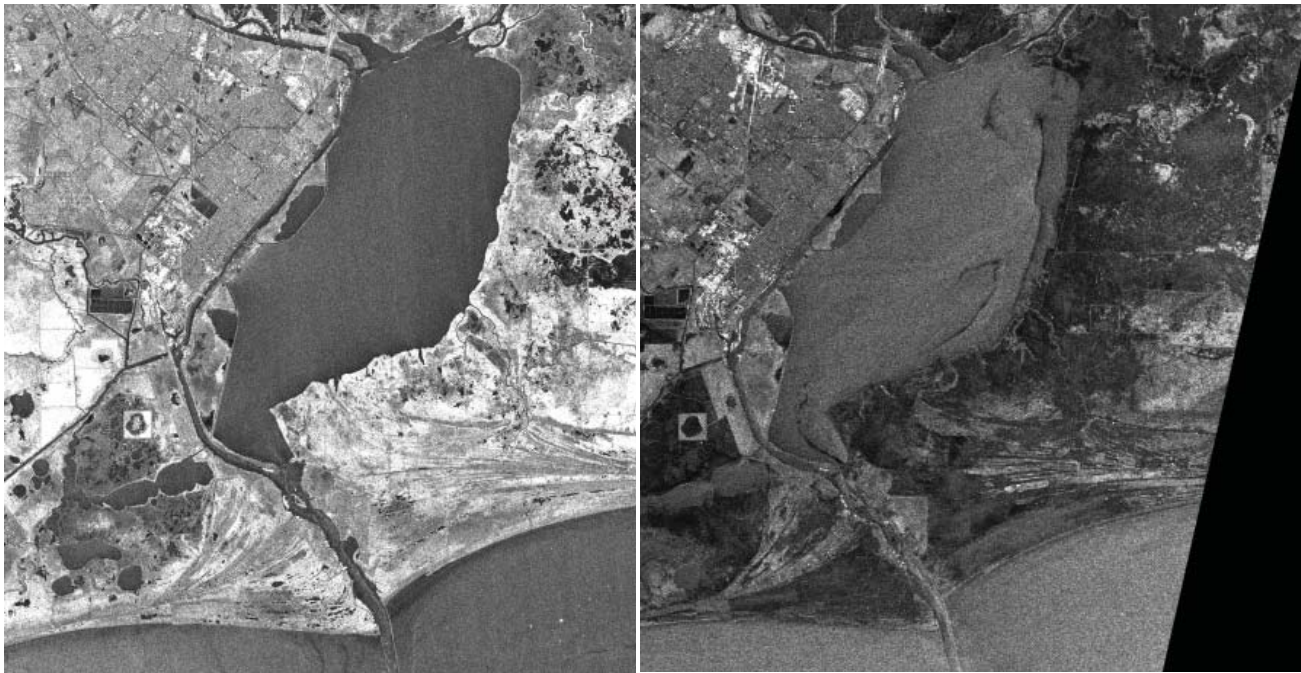
During 2005, NESDIS responded to various requests for imagery and data in support of national environmental and transportation needs. The National Ice Center (NIC) responded to requests for high resolution imagery, including RADARSAT satellite imagery, during and after Hurricanes Katrina and Rita and in support of other national needs. Images of the Galveston Bay and Texas-Louisiana border were acquired during Hurricane Rita to support NOAA HAZMAT and NOAA Fisheries.

The Federal Emergency Management Agency and U. S. Geological Survey Earth Resources Observation Systems Data Center asked the NIC to monitor the area inundated by Hurricane Rita. The imagery provided by NIC is important in assessing impacts of the hurricane.

The Niagara River Control Group requested tailored annotated imagery in support of the Ice Boom Project, which involves structures for ice control in the Niagara River. The NIC has supported this project since the winter of 2004-2005.

The National Science Foundation's River Influences on Shelf Ecosystems (RISE) Research Project made a request for RADARSAT data. The RISE project has particular interest in fronts and in regions where river water and ocean water mix. Due to the dynamic structures of these fronts, RADARSAT images identify the front locations well and assist in choosing working locations for research vessels.

Please visit: <http://www.natice.noaa.gov/>



These RADARSAT-1 images show the Sabine Lake in Texas before and after Hurricane Rita. The image on the left was taken on May 26, 2004. There are no oil slicks evident. The image on the right, taken on September 25, 2005, shows possible oil slicks along the eastern shore (north is at top). (RADARSAT-1 images © Canadian Space Agency, 2004 and 2005).

Synthetic Aperture Radar Marine User's Manual Published

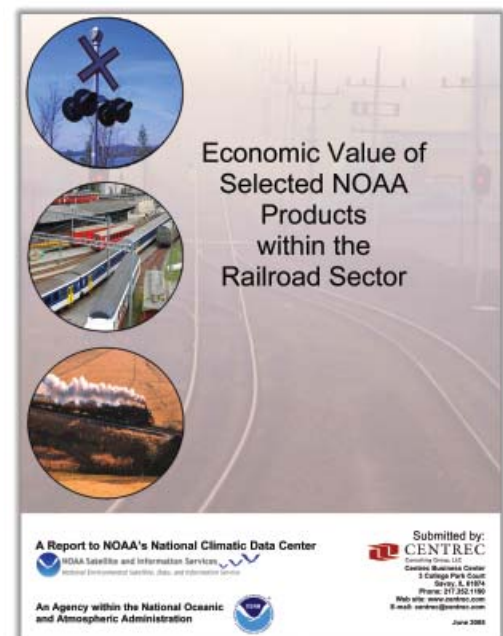
The Synthetic Aperture Radar (SAR) Marine User's Manual has been published under the sponsorship of the Office of Research and Applications. The intended audience is current and future users of SAR data and derived coastal, ocean, and ice products. The manual consists of 20 peer-reviewed chapters written by an international group of authors from Europe, Canada, and the United States.

SAR data products include ice analyses and forecasts for safety of vessels at sea and on the Great Lakes; high-resolution coastal winds for safety of coastal ocean transportation and aviation; and vessel positions for fisheries management, monitoring, and enforcement.

Please visit: <http://www.sarusersmanual.com/>

Report Shows that NOAA Products Benefit Railroads

A report entitled Economic Value of Selected NOAA Products within the Railroad Sector was completed in June 2005 by Centrec Consulting Corporation, under contract to the National Climatic Data Center. The report found that for every dollar that railway companies spend in acquiring NOAA climate data, they receive a potential savings of almost \$13,140 in infrastructure costs that would be required to maintain their own climate data base storage, archiving, and reporting system. Extrapolating the savings to the entire U.S. railway market yields a potential benefit of \$11.5 million. The report also found that railway companies use NOAA's e-Government systems 91 percent of the time to order their climate data and only 9 percent of the orders are received by telephone. This highlights NOAA's efforts to achieve the President's Management Agenda of expanding e-Government. The report is available online at <http://www.centrec.com> (click on "Resources").

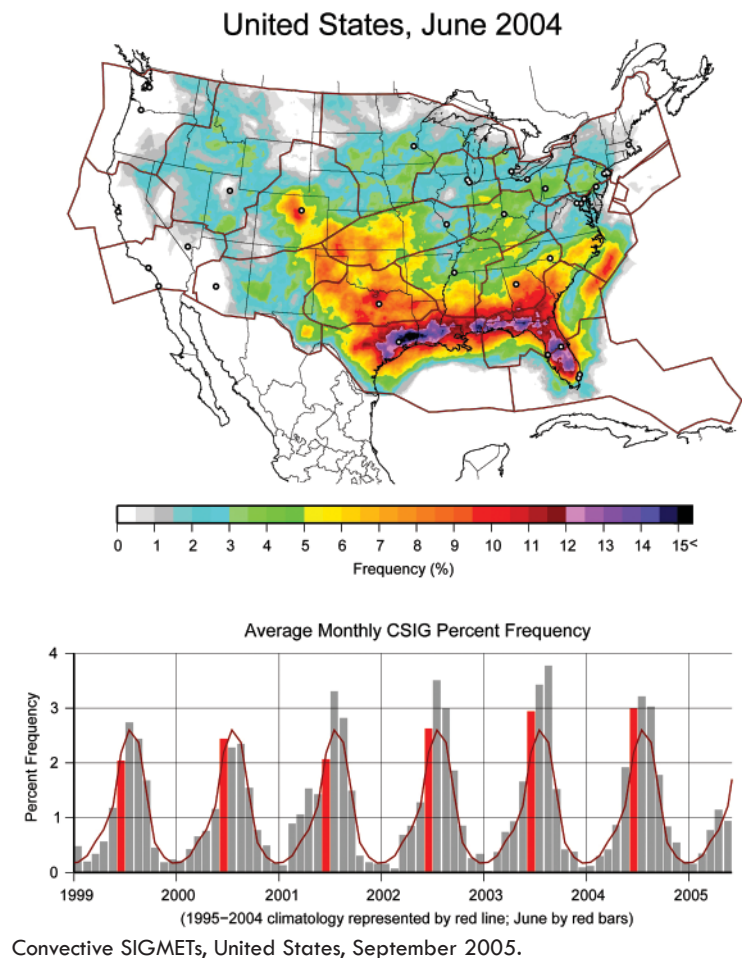


Report on The Economic Value of Selected NOAA Products within the Railroad Sector.

Convective SIGMETs Available Online

At the request of the Federal Aviation Administration (FAA), the National Climatic Data Center, working with NOAA's Aviation Weather Center (AWC), developed a Web site that allows the FAA, airlines, pilots, and the general public to view monthly distributions of frequency of aviation thunderstorm advisories, known as Convective SIGMETs (Significant Meteorological information), or CSIGs. CSIGs are issued by the AWC as a means of advising aircraft pilots of convective activity that is deemed hazardous to aviation. Each CSIG is a subjectively drawn polygon, line, or circle that depicts convection whenever specified criteria are met. The location of each convective object (cell, area, or line) is based on latitude/longitude coordinates, which are made to overlay an array of 8km × 8km grid boxes across the continental United States and its surrounding waters. Maps are currently available for the contiguous United States, four regions of the Nation (Northeast, South, Central, and Southwest), the 20 Air Route Traffic Control Centers, and 20 of the Nation's major airports.

Please visit: <http://www.ncdc.noaa.gov/oa/climate/research/sigmet>



NOAA's Commercial Remote Sensing Licensing Program

A vigorous U.S. commercial remote sensing industry supports critical U.S. national security, foreign policy, and homeland security requirements and advances our economic and technological interests worldwide. Through NOAA, the Department of Commerce works closely with other U.S. Government and industry stakeholders to implement a comprehensive program for commercial remote sensing licensing and enforcement. NOAA supports the policy-making process for commercial remote sensing, through its participation in a National Security Council-chaired working group, and its implementation of relevant Presidential Decision Directives. NOAA also manages the Federal Advisory Committee on Commercial Remote Sensing, which advises the Under Secretary of Commerce for Oceans and Atmosphere on short- and long-range strategies for licensing commercial systems.

To date, more than 30 licenses have been issued, along with over 40 license amendments, and more than 30 foreign agreements have been approved. NOAA oversees technical analyses and supports efforts to better characterize the remote-sensing market and foreign commercial availability of these sensitive technologies. U.S. companies will provide new products and services and intend to play a key role in next generation U.S. defense and intelligence programs. The U.S. national interest requires an international leadership position in commercial satellite remote sensing.

Please visit: <http://www.licensing.noaa.gov/>

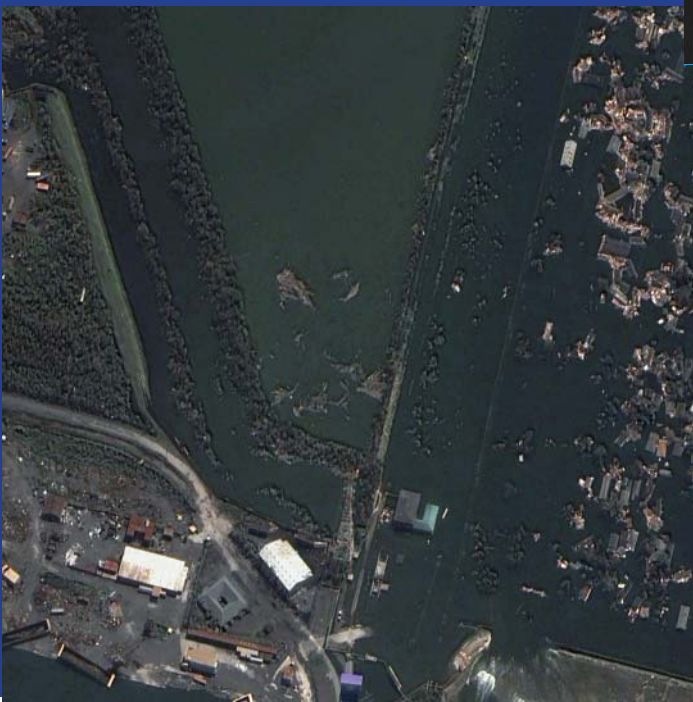


SPACE IMAGING...

Pascagoula, Mississippi, October 8, 2002, on the left, and September 2, 2005, on the right. Credit: Space Imaging.

ORBIMAGE...

Fort Monroe at Hampton, Virginia.
Courtesy: ORBIMAGE



DIGITALGLOBE...

New Orleans levee break at Su-rekote Road. Image collected August 31, 2005. Credit: Digital Globe.

GOAL 5:

Provide Critical Support for the NOAA Mission

For NOAA to achieve its mission goals, strong, effective, and efficient support activities must be in place. Our facilities, environmental satellites, data-processing systems, computing and communication systems, financial and administrative offices, and our approach to management provide the foundation of support for all of our programs. This foundation must support U.S. homeland security by providing services in response to national emergencies. To achieve our mission goals, we must also commit to organizational excellence through management and leadership across a corporate NOAA. NESDIS is committed to organizational excellence in facilities, infrastructure, security, human capital, and administrative services.

New Suitland, Maryland, Satellite Facility Reaches Final Stages of Construction

During 2005, construction on the new NOAA Satellite Operations Facility (NSOF) reached the 98 percent completion mark. The building, in Suitland, Maryland, is scheduled to open in 2006. The new facility, which will replace the current World War II era building, will house five mission-critical systems and a satellite operations center that will operate around the clock, 365 days per year. In addition, it will house the U.S. Mission Control Center for the Search and Rescue Satellite-aided Tracking program and the National Ice Center, a joint NOAA/Navy/Coast Guard mission to track ice floes and issue warnings to maritime forces. Critical communications infrastructure and mission antennae have been installed, and work is progressing on preparing the building for the migration of networks and operational mission systems.

Please visit: <http://www.noaanews.noaa.gov/stories/s1127.htm>

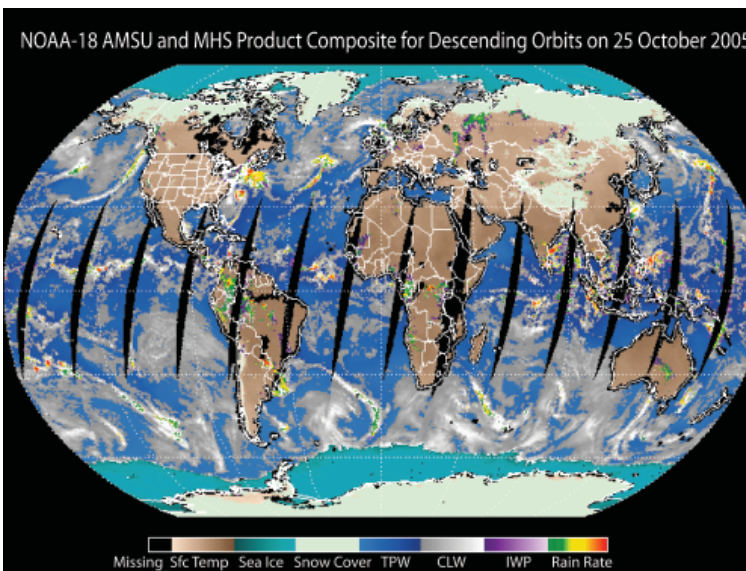
NOAA-N Launched

A new NOAA polar-orbiting operational environmental satellite (POES) was successfully launched from Vandenberg Air Force Base, California, on May 20, 2005. The NOAA-N satellite—designated NOAA-18 upon achieving orbit—is critical in the development of a global Earth observation program, continuity of operations, and improvement of NOAA's weather and climate forecasts and U.S. search and rescue operations.

NOAA-18, procured by NASA under an interagency agreement with NOAA, continues the POES series with improved imaging and sounding capabilities that collect data around the world.



Top: This aerial view shows the new NOAA Satellite Operations Facility in Suitland, Maryland. Bottom: The new NOAA Satellite Operations Facility in Suitland, Maryland, will be open in 2006.



Top left: NOAA-N lifts off from Vandenberg Air Force Base, California, on May 20, 2005. Top right: NOAA-18 hydrological product composite for September 18, 2005.

NOAA-18, declared operational on August 30, replaced NOAA-16, a POES spacecraft that had been in operation since September 2000, and joined NOAA-17, launched in June 2002, in a constellation of two primary, two backup, and two standby polar-orbiting satellites. The global data from these satellites are used extensively in NOAA's weather prediction numerical models and help drive NOAA's long-range climate and seasonal outlooks, including forecasts for El Niño and La Niña.

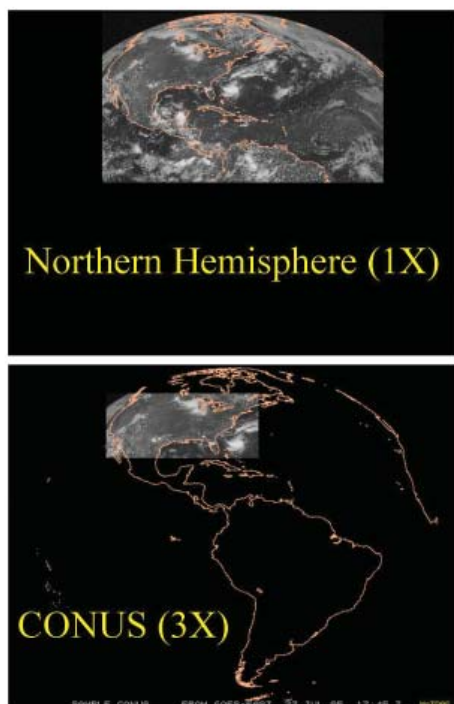
NESDIS continued the generation of hydrological products with the launch of NOAA-18. Within 120 days of launch, the Microwave Surface and Precipitation Products System began delivering operational products for weather and climate forecasts. These products include total precipitable water, cloud liquid water, snow cover and water equivalent, sea ice concentration, precipitation rate, ice water path, land surface temperature, and land surface emissivity. Users of the data include the National Weather Service, the U.S. Navy's Fleet Numerical Meteorology and Oceanography Center, and the European Center for Medium-Range Weather Forecasts.

Please visit: <http://www.orbit.nesdis.noaa.gov/corps/scsb/mspps/main.html> and <http://www.oso.noaa.gov/> and <http://www.oso.noaa.gov/poes/index.htm>

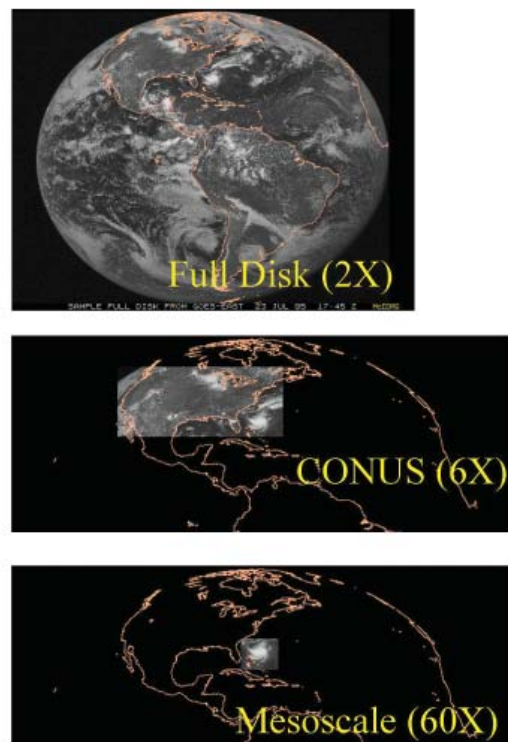
GOES-R Plans Move Forward

Planning for GOES-R, the next generation of geostationary satellites, continued to move forward in 2005. System Prime Program Definition and Risk Reduction (PDRR) contracts were awarded. These contracts will continue into 2007 providing information for the Acquisition and Operations program preparation. Four of the five instrument contracts were active in 2005 as well, and the PDRR Request for Proposals was released for the fifth instrument.

This new series of geostationary instruments advances technology by several decades and will enhance our forecasting capabilities. The technological advances will provide four times the environmental information over a greater geographical area in less time and at higher resolutions than the current series. GOES provides an uninterrupted flow of data for use by NOAA line offices including the National Weather Service, other Federal agencies, state and local governments, and private organizations.



Current GOES imager in 30 minutes.



Future GOES imager in 30 minutes.

In addition to the improved spatial resolution and improved spectral resolution, the GOES-R imager will scan approximately five times as fast as the current GOES imager. In only 30 minutes in the “flex” scan mode of GOES-R, there will be two full-disk, six Continental United States, and 60 mesoscale images. This compares with only four images from the current system in the “rapid” imaging mode.

Please visit: http://www.osd.noaa.gov/goes_R/index.htm and http://www.osd.noaa.gov/goes_R/index.htm

NOAA Central Library Increases Resources

During 2005, the NOAA Central Library increased its NOAA-wide offerings of licensed databases from two to four by adding JSTOR® and BioOne™. These new databases provide online access to the permanent archives of scientific journals.

JSTOR®, the online archive to scholarly journals, provides online access to the archive of 64 scientific journals in the Ecology and Botany, General Sciences, and Math and Statistics collections. Examples are the Proceedings of the National Academy of Sciences of the United States, Scientific Monthly, Limnology and Oceanography, and Transactions of the American Mathematical Society.

The second new service, BioOne™ provides access to 78 additional research journals in the biological, ecological, and environmental sciences. Both JSTOR® and BioOne™ are not-for-profit organizations. The databases complement the current NOAA-wide licenses, the Aquatic Sciences and Fisheries Abstracts by Cambridge Scientific Abstracts, and NetLibrary (full text of 106 information technology books).

Please visit: <http://www.lib.noaa.gov/>



Visitors to the NOAA Central Library have online access to data from various sources.

Cross-cutting Priorities

In meetings with NOAA’s stakeholders and employees, both groups emphasized that NOAA must make our core priorities more relevant and effective to support our goals. As a result, NOAA identified five essential activities where corporate policy and guidance can ensure that our goals are coordinated in important areas. Each of these cross-cutting priorities is guided by a NOAA council, responsible for developing agency-wide policies and procedures in that council’s area. The areas are:

The areas are:

- Developing, Valuing, and Sustaining a World-class Workforce
- Integrating Global Environmental Observations and Data Management
- Ensuring Sound, State-of-the-art Research
- Promoting Environmental Literacy
- Exercising International Leadership

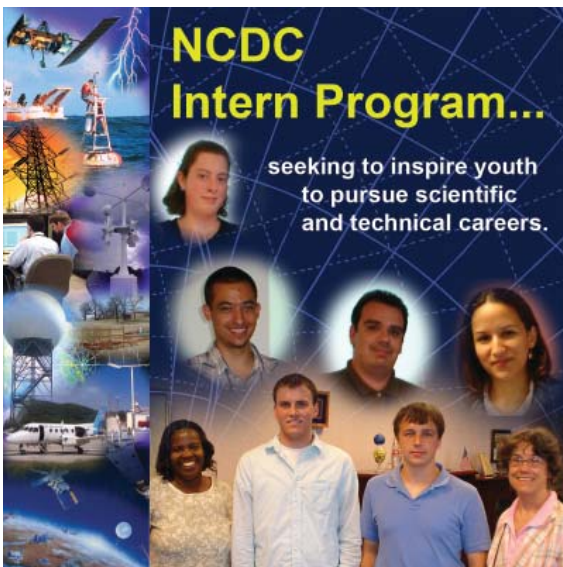
Developing, Valuing, and Sustaining a World-class Workforce

Accomplishing NOAA’s challenging goals requires an inclusive, diverse, highly skilled, motivated, and effective workforce that reflects the communities we serve. We must develop and maintain a culture that empowers people by encouraging creativity, initiative, risk-taking, and open debate. As society evolves, it is essential that we continue to have the scientific, technical, and administrative expertise necessary to maintain our leadership.

Diversity

NESDIS recognizes and values diversity in all its forms as being crucial to the successful accomplishment of its mission and to the personal and professional growth of its workforce. Diversity management at NESDIS is a long-term strategy aimed at bringing in and encouraging a diverse range of individuals to reach their full potential, to contribute their talents to mission accomplishment, and to promote a work environment where differences and similarities are respected and valued.

In 2005, the NESDIS Diversity Council, made up of senior leaders and employees from all offices and centers, recommitted itself to achieving the goals set forth in its five-year Diversity Action Plan. Encouraged by the Council, NESDIS employees participated in a variety of diversity and cultural awareness training programs. NESDIS offices and centers hired and mentored over 100 summer interns from underrepresented groups, conducted targeted outreach and recruitment activities, and sponsored employee recognition programs.



Please visit: <http://www.nesdis.noaa.gov/About/Diversity/diversity.html>

National Climatic Data Center's Student Internship Program

The NCDC Intern Program seeks to inspire youth to pursue scientific and technical careers. The National Climatic Data Center (NCDC) hosted 18 students during its 2005 Summer Internship Program. Two students were sponsored through the NOAA Graduate Science Program. One is attending the University of Hawaii; the other attends the University of Alabama. The remaining students were from various programs including Entry Point sponsored by the American Association for the Advancement of Science, Oak Ridge Institute for Science and Education, Federal Career Intern Program, and the National Environmental Modeling and Analysis Center. The group also included several volunteers.

NOAA Leadership Competencies Development Program

The Leadership Competencies Development Program (LCDP) is a competitive, 18-month program that provides a series of training and developmental experiences for a cadre of NOAA employees who have excellent potential for



Class IV of the Leadership Competencies Development Program.

assuming greater leadership responsibilities in the next three to five years. The program fosters a shared understanding of our agency and its mission, vision, and objectives. The LCDP provides a framework for developing future senior leaders with NOAA-wide capability. Four NESDIS employees graduated from Class IV in October 2005.

Please visit: <http://lcdp.noaa.gov/>

Integrating Global Environmental Observations and Data Management

NOAA depends on an observing system for virtually every activity, including research and discovery, short-term warnings of immediate hazards, day-to-day regulatory decisions, and long-range operational forecasting. An integrated Earth observation and data management system will enable NOAA's resources to be applied more efficiently and effectively by reducing duplication, improving coverage, and providing networks to disseminate information when and where it is needed around the world. Through our participation and leadership in national and international global data collection and reporting efforts, we can further integrate NOAA's observing systems, data, and quality control with efforts of other nations to guarantee the best quality and coverage of Earth observing data.

10-Year Implementation Plan for the Global Earth Observation System of Systems

NOAA worked with an intergovernmental group to develop the 10-Year Implementation Plan for the Global Earth Observation System of Systems, which was formally endorsed on February 16, 2005, by 61 countries. This document summarizes the essential steps to be undertaken over the next 10 years to put in place a Global Earth Observation System of Systems (GEOSS). The Implementation Plan describes the intended scope of GEOSS and its societal benefits. NOAA is actively involved in the development and review of the 2006 GEO Work Plan, which describes specific activities to be undertaken in 2006 to begin implementing GEOSS.

Strategic Plan for the U.S. Integrated Earth Observation System

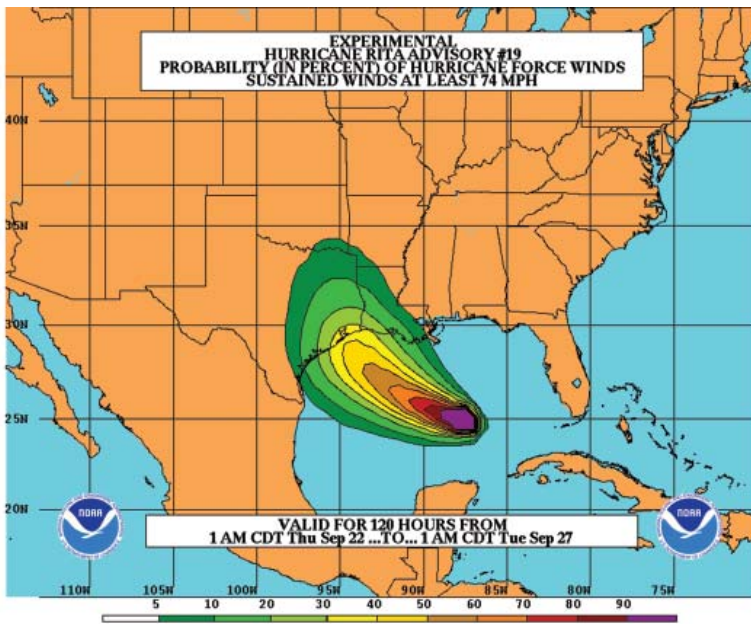
NOAA played an instrumental role in the development of the Strategic Plan for the U.S. Integrated Earth Observation System, published on April 6, 2005. This document, created by the U.S. Group on Earth Observations (USGEO), represents the collaborative efforts of over 15 Federal agencies and three White House offices. The plan lays out an approach for developing an Integrated Earth Observation System (IEOS) envisioned to be the U.S. contribution to GEOSS. The plan also identifies technical and organizational steps required to implement the integrated system.

NOAA's Integrated Observation and Data Management System

NOAA's Observing System Council (NOSC) is developing NOAA's Integrated Observation and Data Management System. This integrated system will be NOAA's contribution to the U.S. Integrated Earth Observation System. The NOSC is defining NOAA's baseline, evolving, and target architectures. The baseline architecture—NOAA's existing observing systems and observational requirements—provides a benchmark against which all future observation and data management activities can be compared. The NOSC is also evaluating a target architecture, providing a high-level overview and set of key components and principles to which all observing and data management systems must adhere. A new NOAA policy will ensure that all Earth observation and data management related acquisitions meet the requirements of the target architecture.

Ensuring Sound, State-of-the-art Research

At the Earth Observation Partnership of the Americas workshop in Buenos Aires in June 2005, leaders from 15 nations attended a NOAA-sponsored workshop and discussed implementing new strategies to contribute to the Global Earth Observation System of Systems (GEOSS), including the exchange of satellite resources to better track weather and climate trends and improving training among scientists in the region. The workshop produced several key agreements. For example, NOAA and representatives from the other nations will create joint ventures to develop



An example of the five-day cumulative probability of hurricane force (64 knot) winds for a forecast for Hurricane Rita from September 2005.

and wind structure errors. A method to combine all sources of errors in hurricane forecasts, based on historical probability distributions, was developed as part of a NESDIS project funded by the NOAA Joint Hurricane Test Bed. This product will provide emergency managers and other responders a new quantitative tool that can be used for cost-benefit analyses and to optimize hurricane mitigation activities.

This new probability model provides estimates of the likelihood of 34-, 50- and 64-knot winds at any given location at 12-hour increments from the beginning of each forecast period out to five days. The probability code was provided to the National Hurricane Center in Miami, where it was run on an experimental basis in real-time in 2005.

Promoting Environmental Literacy, Including Outreach and Education

NOAA, a global leader in oceanic and atmospheric sciences, has a responsibility to improve public understanding of Earth's dynamic air and water systems and the effect those systems have on all aspects of people's lives. We work with partners in educational institutions and organizations, government agencies at all levels, and private industry to build environmental literacy. We seek to educate and inform current and future generations about the changing Earth and its processes, to inspire youth to pursue scientific and technical careers, and to improve the public's awareness, understanding, and use of NOAA products and services.

satellite sensors for next-generation spacecraft. In addition, as NOAA develops new satellites, it will also upgrade ground systems in the countries that receive and process the data and train the users who handle the information. NOAA and the other national representatives agreed to partner with users of meteorological data from the Costa Rican ground station, the non-meteorological data from the Central American Environmental Information System in Panama, and the Montevideo Group University Association. At an important side meeting, a formal request was made for NOAA to consider the possibility of positioning a geostationary satellite between 60°W and 65°W. NOAA representatives also met with Argentine Vice President Daniel Scioli to discuss the outcomes of the meeting.

New Hurricane Probability Product

Many factors contribute to the errors in hurricane forecasts. These factors include the uncertainty in satellite position and intensity estimates and track, intensity,



Attendees at the Washington Stakeholders Forum in March 2005.



Washington Stakeholders Forum

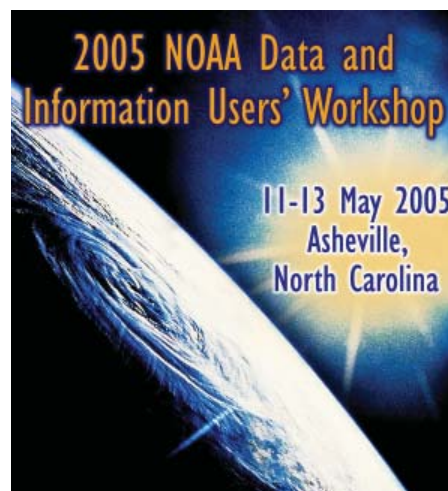
A Stakeholders Forum, hosted by Under Secretary of Commerce for Oceans and Atmosphere Vice Admiral Conrad C. Lautenbacher, U.S. Navy, (Ret.), was held March 2 in Washington, DC. The purpose of the forum was to apprise stakeholders of NOAA plans and developments and obtain stakeholder input and recommendations for consideration as part of the NOAA strategic planning process. Gregory W. Withee, Assistant Administrator for Satellite and Information Services, led a breakout session on Earth observations and data management, met with stakeholders, and obtained recommendations regarding their future needs, products, and services.

Please visit: http://www.spo.noaa.gov/dcforum2005_summary.htm

2005 NOAA Data and Information Users' Workshop

The 2005 NOAA Data and Information Users' Workshop was held May 11-13 in Asheville, North Carolina. The workshop had 204 registered participants. Deputy Under Secretary for Oceans and Atmosphere Brigadier General Jack Kelly, U.S. Air Force, (Ret.), provided the keynote address. He spoke about the status of NOAA data distribution, and participants formed breakout groups according to discipline. Dave Jones, President and CEO of Storm Center Communications, Inc., and President of the Foundation for Earth Sciences, provided an informative dinner speech.

Please visit: <http://www.ncdc.noaa.gov/oa/usrsworkshop/index.html>



Exercising International Leadership

Because the influence and use of Earth's oceans and atmosphere affect the economies and ecosystems of every nation, the domain of NOAA's activities naturally extends across national and continental boundaries. NOAA plays a major role in international efforts to meet environmental and ecosystem challenges. We recognize the value of our international partners as we learn from their experiences and benefit by working together on common issues. Internationally, we support and promote policies and interests in ecosystem-based management, climate science, Earth observation, water management, and weather forecasting.

International and Interagency Leadership in Earth Observations

NOAA continues to exercise leadership in the development of a coordinated, comprehensive, and sustainable Global Earth Observation System of Systems (GEOSS). Secretary of Commerce Carlos Gutierrez led the U.S. delegation to Earth Observation Summit-III, February 16, in Brussels, Belgium. Under Secretary of Commerce for Oceans and Atmosphere Vice Admiral Conrad C. Lautenbacher, U.S. Navy, (Ret.), joined in representing the United States. This summit follows the first Earth Observation Summit, co-hosted by then-Secretary of Commerce Donald L. Evans in July 2003, in which all agreed to move toward the development of such a system of systems.

The first meeting of the newly established Group on Earth Observations (GEO) took place in May 2005. It was agreed the United States would continue as Co-Chair and would be a member of the Executive Committee. The objective of this committee is to facilitate and implement decisions of the GEO Plenary between meetings. GEO also addressed mechanisms for obtaining scientific and technical advice and for interfacing with the user community, as well as actions needed to support tsunami warning, response, and recovery.

For two years, NOAA also provided the Executive Director and Secretariat for the ad hoc GEO. Now that an on-going GEO has been established, a permanent Secretariat has been appointed, hosted at the World Meteorological Organization in Geneva.

Please visit: http://europa.eu.int/comm/research/environment/geo/article_2449_en.htm

Earth Observation Partnership of the Americas

At the Earth Observation Partnership of the Americas workshop in Buenos Aires in June 2005, leaders from 15 nations attended a NOAA-sponsored workshop and discussed implementing new strategies to contribute to the Global Earth Observation System of Systems (GEOSS), including the exchange of satellite resources to better track weather and climate trends and improving training among scientists in the region. The workshop produced several key agreements. For example, NOAA and representatives from the other nations will create joint ventures to develop satellite sensors for next-generation spacecraft. In addition, as NOAA develops new satellites, it will also upgrade ground systems in the countries that receive and process the data and train the users who handle the information. NOAA and the other national representatives agreed to partner with users of meteorological data from the Costa Rican ground station, the non-meteorological data from the Central American Environmental Information System in Panama, and the Montevideo Group University Association. At an important side meeting, a formal request was made for NOAA to consider the possibility of positioning a geostationary satellite between 60°W and 65°W. NOAA representatives also met with Argentine Vice President Daniel Scioli to discuss the outcomes of the meeting.



Left to right: Deputy Assistant Administrator for Weather Services John Jones; Assistant Administrator for Satellite and Information Services Gregory Withee; Deputy Under Secretary for Oceans and Atmosphere Brig. General Jack Kelly, U.S. Air Force, Ret.; Argentine Vice President Daniel Scioli; Director of the Comision Nacional de Actividades Espaciales Dr. Conrado Varotto; and Director of the Argentine National Meteorological Service Com. Miguel A. Rabiolo.

Please visit: <http://www.publicaffairs.noaa.gov/releases2005/jun05/noaa05-080.html>

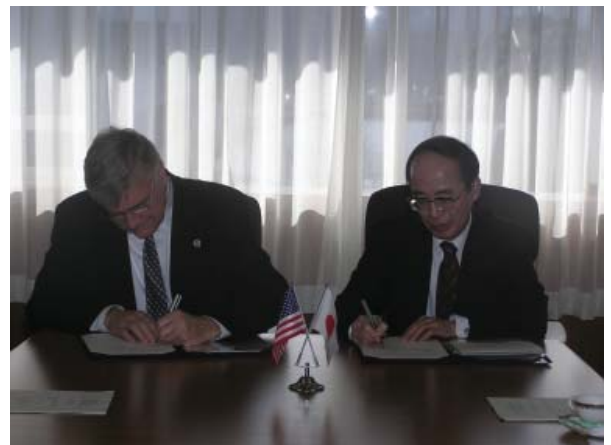
Integrated Global Observing Strategy Capacity Building Workshop

NOAA co-sponsored the Integrated Global Observing Strategy (IGOS) Water Cycle Theme Capacity Building Implementation Workshop in Buenos Aires, Argentina, in October 2005. Workshop attendees included many water resource managers from throughout South America who were focused on learning how to better use satellite data from NOAA and other agencies to enhance their management efforts. NOAA highlighted its work on the Earth Observation Partnership of the Americas and Global Earth Observation System of Systems and how these initiatives will enhance the coordinated management of environmental resources.

NOAA Satellite and Information Service Signs Important Geostationary Satellite Backup Agreement

NOAA signed a geostationary backup agreement with the Japan Meteorological Agency (JMA) on February 23, 2005, in Tokyo. The agreement was signed by Gregory Withee, NOAA Assistant Administrator for Satellite and Information Services, and Koichi Nagasaka, Director-General of JMA.

This long-term mutual geostationary satellite backup arrangement, similar to an existing arrangement with the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), will help NOAA and Japan mitigate the high costs and risks associated with being a satellite operator. By working with its partners, NOAA ensures the continental United States will have continuous access to geostationary satellite coverage that is critical for severe weather monitoring.



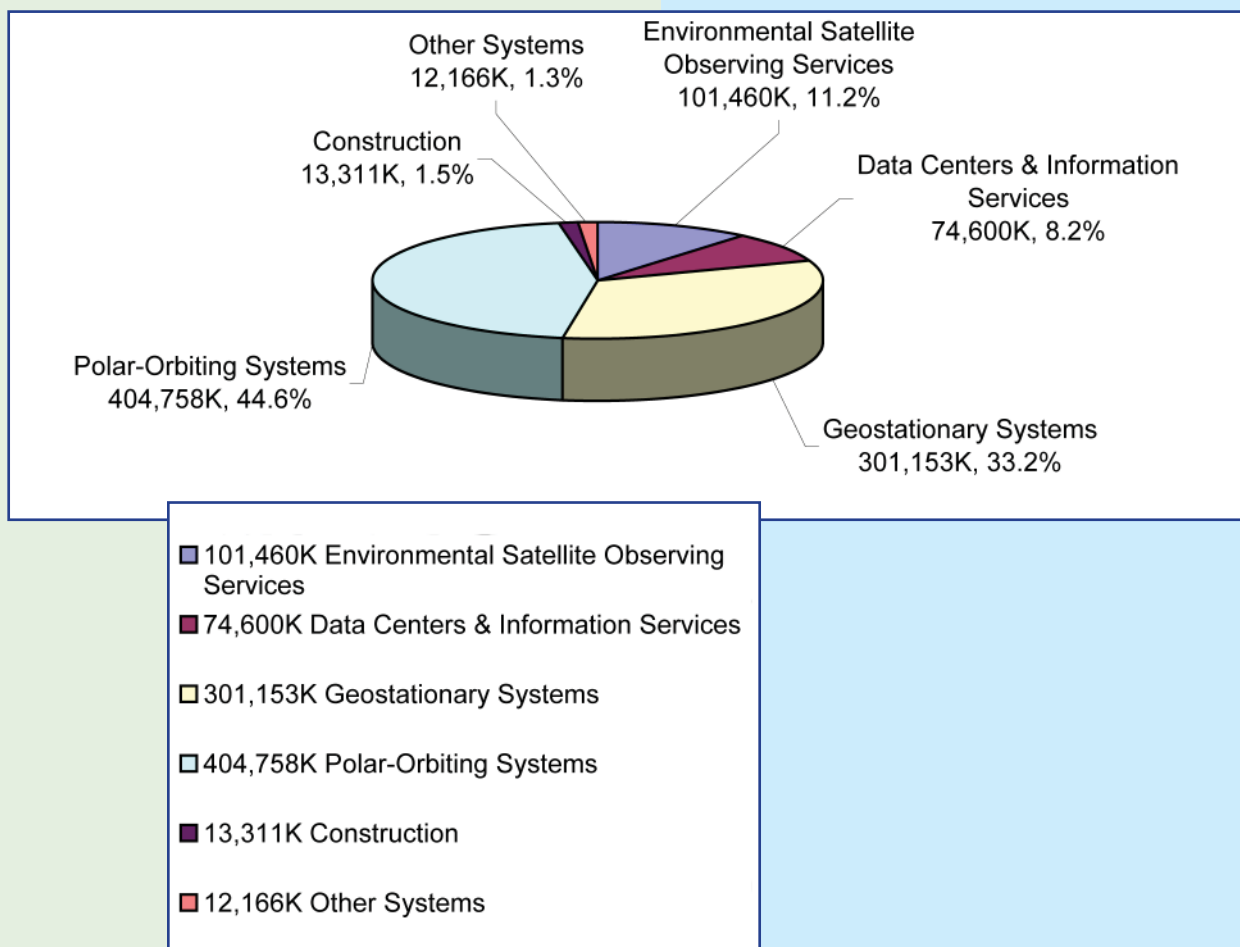
NOAA Assistant Administrator Gregory Withee and Director-General of the Japan Meteorological Agency Koichi Nagasaka sign the geostationary satellite backup agreement.

NESDIS FY 2005 Budget

NESDIS has two primary areas of activity:

- Acquisition and construction of satellites and satellite facilities
- Operational satellite, data, and information services.

Satellite acquisition and construction of satellite facilities account for 80.6 percent of the FY 2005 NESDIS budget. Operational satellite services and data and information services account for the other 19.4 percent.



A Look to 2006



I am delighted to begin my service with NOAA at this exciting time. My 23 years at NASA should prove to be extremely beneficial to NESDIS, especially in view of the ongoing programs in which NOAA and NASA work as partners.

As the Nation's need for environmental data increases, NOAA's new space and ground-based systems will become operational in the future. NESDIS will see a dramatic increase in the volume of data that is accessed and is planning for the explosive data growth. Our emphasis is on improving methods to share and manage the data in our current holdings. NOAA is investing in technology components such as spatially enabled databases, A Web-accessible Geographic Information System (GIS), and virtual data centers.

A new and improved GIS map services interface is now online at the National Climatic Data Center, with data from over 50,000 observing stations worldwide. As a new feature of the GIS interface, selected data types can be graphed for user-selected stations and periods of interest. In 2006, this capability will continue to be expanded for additional data types.

The launch of NOAA-18 in 2005 represents the start of a new era of international co-operation. Under an agreement between NOAA and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), NOAA will provide NOAA-18 and a later satellite, NOAA-N Prime, for an afternoon orbit of the globe and carry a EUMETSAT instrument—the Microwave Humidity Sounder. In return, EUMETSAT will provide and launch three European-built satellites, called MetOp, into morning orbits during the next 10 years, carrying key NOAA instruments. The first MetOp launch will take place in 2006.

GOES-N, the first spacecraft in the new GOES-N/O/P series, will be launched in 2006, after unforeseen events delayed the launch in 2005. The satellite features a highly stable pointing platform, which will improve the performance of the imager and sounder instruments. It also has improved instruments for monitoring the space and solar environment, a new dedicated broadcast capability to be used by the Emergency Managers Weather Information Network, and a new digital weather facsimile capability for higher quality transmissions of data and products.

With an eye toward developing NOAA managers of the future, NESDIS hopes to place several of its employees in the next class of the NOAA Leadership Competencies Development Program, which will begin in April 2006.

A handwritten signature in dark ink, reading "Mary E. Kicza". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mary E. Kicza
Deputy Assistant Administrator

Administrator's Awards

Jane A. D'Aguanno - For support of NOAA homeland security through leading the Continuity of Operations Working Group and management of the Incident Coordination Center.

Bernadette G. Foreman - For spearheading dramatic improvements in property accounting and acquisition planning, both in NESDIS and throughout NOAA.

Reginald B. Lawrence - For the creation of an innovative plan to consolidate two nationally critical satellite data processing and distribution systems-CEMSCS and SATEPS.

Matthew J. Menne - for promoting a diverse and inclusive work environment that encourages community caring and involvement.

Karen Owen - For leadership and administrative support which improved the efficiency and efficacy of NOAA's National Climatic Data Center including the development of a multifunctional file plan database.

Carolyn Alderman, Jan Charity (NMFS), Elizabeth Hess (OAR) - For demonstrating extraordinary leadership and teamwork across NOAA line organizations in producing user manuals for the Department of Commerce Demonstration Project Performance Payout System. *Please note that this award was nominated by another line office.

John L. Lillibridge, Walter H.F. Smith, Cynthia B. Zeigler, George M. Sinclair - For rescuing and reprocessing all altimeter data from the U.S. Navy Geosat to produce a 20th anniversary edition data product.

Diversity SPECTRUM Awards

Albert Theberge, Nina Jackson, Carmella Davis-Watkins, Robert Carey, NOAA Heritage Group - For organizing NOAA's wealth of artifacts into a successful Science Center exhibit.

Gold Awards

Mitchell Goldberg, Fuzhong Weng, Larry McMillin (retired), John Derber (NWS), Russell Treadon (NWS) - For developing techniques to assimilate advanced satellite observations into computerized models that will significantly improve weather forecasting.

Kent Hughes, John Cassidy (NOS), Mary Culver (NOS), Richard Stumpf (NOS), Michelle Tomlinson (NOS), Mark Vincent (NOS) - For scientific achievement in developing and implementing the Harmful Algal Bloom Forecasting System to better protect human health and commerce. *Please note that this award was nominated by ORA.

Silver Awards

Changyong Cao, Jerry Sullivan, Andrew Heidinger (NWS) - For developing an innovative inter-satellite calibration method that increases the reliability of satellite measurements of global climate change.

Mark DeMaria, Michelle Mainelli (NWS) - For the improvement of operational hurricane intensity forecasts through better utilization of satellite observations.

Gary Davis, Kathleen Kelly, Katy Vincent, Glenn Tallia (OGC) - For concluding a satellite agreement ensuring access to critical data for severe weather forecasting in case of NOAA satellite failure.

Jeffrey Key, Jaime Daniels - For improving global weather forecasts through better utilization of satellite observations over the polar regions.

Employee and Team Members of the Month

December 2004 Team Member of the Month

Tim Loomis - For dedication in producing the enhanced satellite imagery that was broadcast across the U.S. and around the world during the hectic 2004 hurricane season.

March 2005 Employee of the Month

William Angel - For outstanding service in managing the heavy volume of climate readings from the NOAA National Weather Service network of 11,000 volunteer cooperative weather observers around the country.

July 2005 Team Member of the Month

Robert Taddei - For excellence and enthusiasm in monitoring changes in NOAA's polar-orbiting weather satellites and ensuring continuation of critical mission data coverage.

October 2005 Employee of the Month

Jay Lawrimore - For excellence and dedication in improving NOAA's abilities to track U.S. weather and climate.

NESDIS Bronze Nominations

Individual Awards

Jeffrey D. Arnfield - For the development of a web-based metadata system which ensures the quality and value of climate data archived by NOAA's National Climatic Data Center.

Group Awards

Colleen N. Hartman, Joan Maginnis (DOC OGC), James Walpole (OGC) - For concluding the challenging agreement to rebuild the NOAA-N Prime satellite, assuring continuity of global environmental satellite services.

Michael Helfert, David R. Easterling, C. Bruce Baker, Debra S. Braun, John Jensen, Sharon Leduc, Russell Vose, Tilden P. Meyers (OAR), Rayford P. Hosker, Jr. (OAR), Richard G. Reynolds (retired 1/3/2006) - For the establishment of a new climate observing network dedicated to providing definitive answers about climate variability and change.

Michael Mignogno, Wilfred E. Mazur, Gary K. Davis, Mark Langstein, (DOC OGC), Lynn Flanagan (DOC OGC) - For critical technical support enabling an agreement to rebuild NOAA-N prime satellite, assuring continuity of global environmental data and services.

Douglas P. Ross, Ryan M. Nelson, Kenneth E. Schmidt, Robert F. Summers, Hilery T. Whitehurst, Vickie S. Wright - For developing and implementing an online access system for over 700 terabytes of environmental data.

Philip L. Whaley, Albert J. McMath, Jr., Forrest Porch, Michael B. Galeone, Margaret L. Skeoch, Steven Briele, John T. Moran, Edward C. Hamblin, Frederick White (retired 3/31/05), George B. Linvill - For management, technical support, and teamwork in meeting NOAA's goals for providing vital environmental data which supports its domestic and international partners. This group is located in Wallops Island, VA.

Organizational Awards

Fairbanks Command Staff, OSO - For cooperation and teamwork by providing unparalleled support to the nation, State of Alaska and NASA during the 2004 wildfire season.

Office of Satellite Operations, Engineering and Management Team - For management and technical support in providing vital satellite data during the peak of the 2004 hurricane season.

Group Bronze Nominations submitted by other staff and line offices that include NESDIS employees

Office of the Under Secretary Nomination

Cheryl Oliver (NOS), William Zahner (NMFS), John Collins (NMFS), Luis Gyles (NWS), Patricia Huff (NWS), Nina L. Jackson, Lynette Joynes (CAO), Mary Kenefick (CAO), Stephen Randall (NOS), Albert E. Theberge, Jr., Carmella Davis-Watkins, Nano Dayo-Otekunrin (CAO) - For the planning and execution of the first annual NOAA Heritage Week, Treasures of NOAA's Ark exhibit and the NOAA Preserve America Initiative Grant Program.

NOS Nomination

Keelin Kuipers, Paul Scholz, Tracy Collier (NMFS), Judith Gray (OAR), Russell Jackson, Thomas Siewicki, Frank Aikman, Stephen Gill, Jeffrey Savadel (NWS), Paul Hirschberg (NWS), Melissa Patterson, Rebecca Smyth, Suzanne Van Cooten (NWS), Michael L. Crane - For leadership in establishing the Coastal Storms Program and successfully completing the program's first pilot in Florida.

OAR Nomination

Randall M. Dole, Robert S. Webb, David R. Easterling, Richard R. Heim, Jr., Felix Kogan, Connie Ann Woodhouse, Douglas Le Comte (NWS), Robert Livezey (NWS), Steven Pritchett (NWS), Michael Brewer (NWS), Douglas Kluck (NWS), Francis Richards (NWS), Charlie Liles (NWS), Scott Rayder - For developing an integrated state, local, and federal strategy for a National Integrated Drought Information System (NIDIS) endorsed by the Western Governors' Association.

PPI Nomination

Daniel Farrow (NOS), Elizabeth Davenport (NOS), Nancy Doyle (NOS), Brent Ache (NOS), Joshua Lott (NOS), Marie Colton (NOS), John A. Jensen, Joanne Magoulas, Alfred Merrill Powell, Susan Kennedy (PPI), Neil Christerson (PPI), Mike Ford (PPI), Ronla Meiggs (NWS), Rich Fulton (NWS), John Sokich (NWS), Wendy Levine (NWS), Laura Mervilde (NWS), Kristen Koch (OAR), John Bortniak (NMFS), Jim Cohen (NMFS), Robert Ziobro (NMFS), Linda Smith (NMAO), John Villemarette (CIO), Jennifer L. Heyob (WFMO), Senen Salapare (CFO), Kevin S. Amos (PA&E) - For advancement of a NOAA-wide performance measurement system to improve organizational delivery of service by creating and promulgating performance management principles, standards, guidance, and training.

NOAA Distinguished Career Award

Douglas Namian

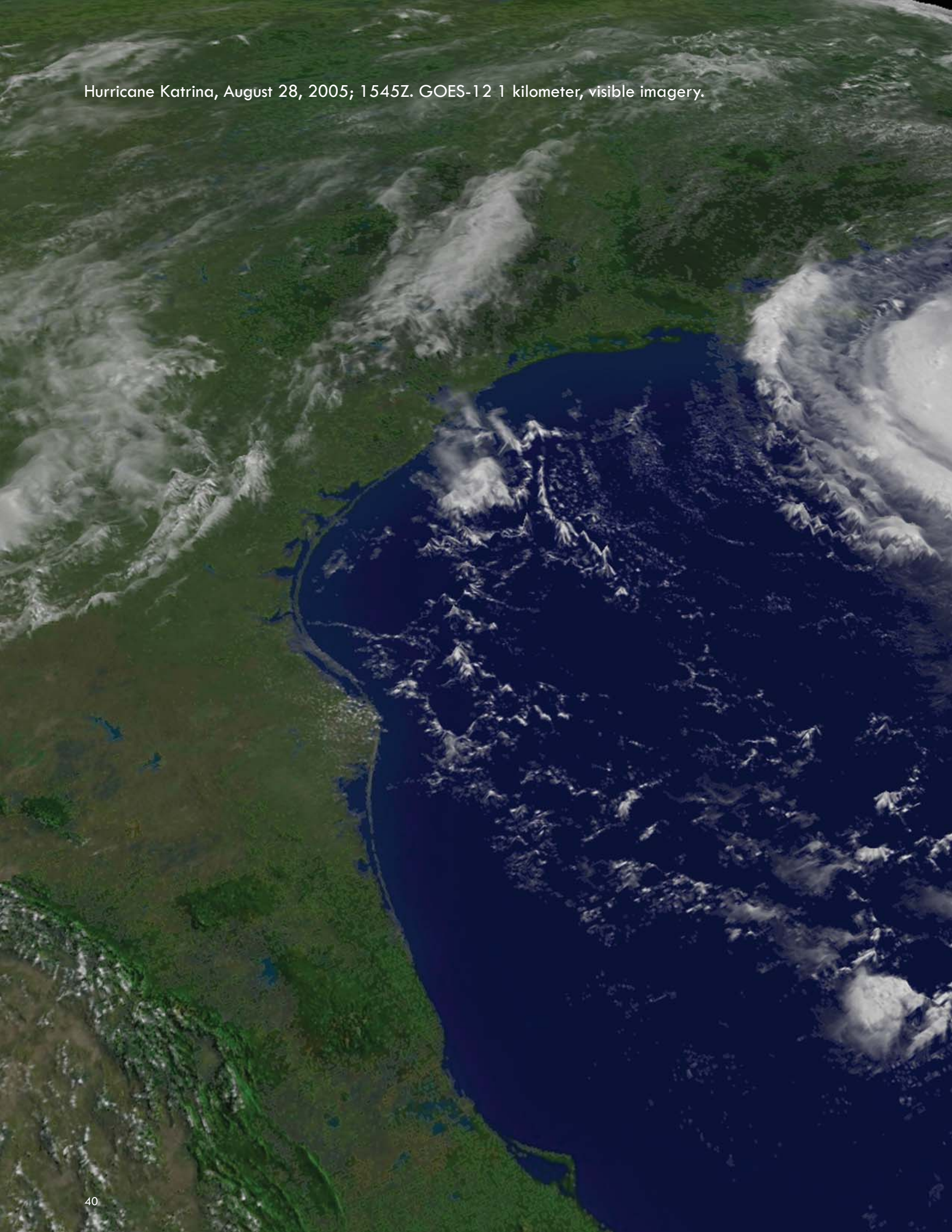
Category: Management and Supervision

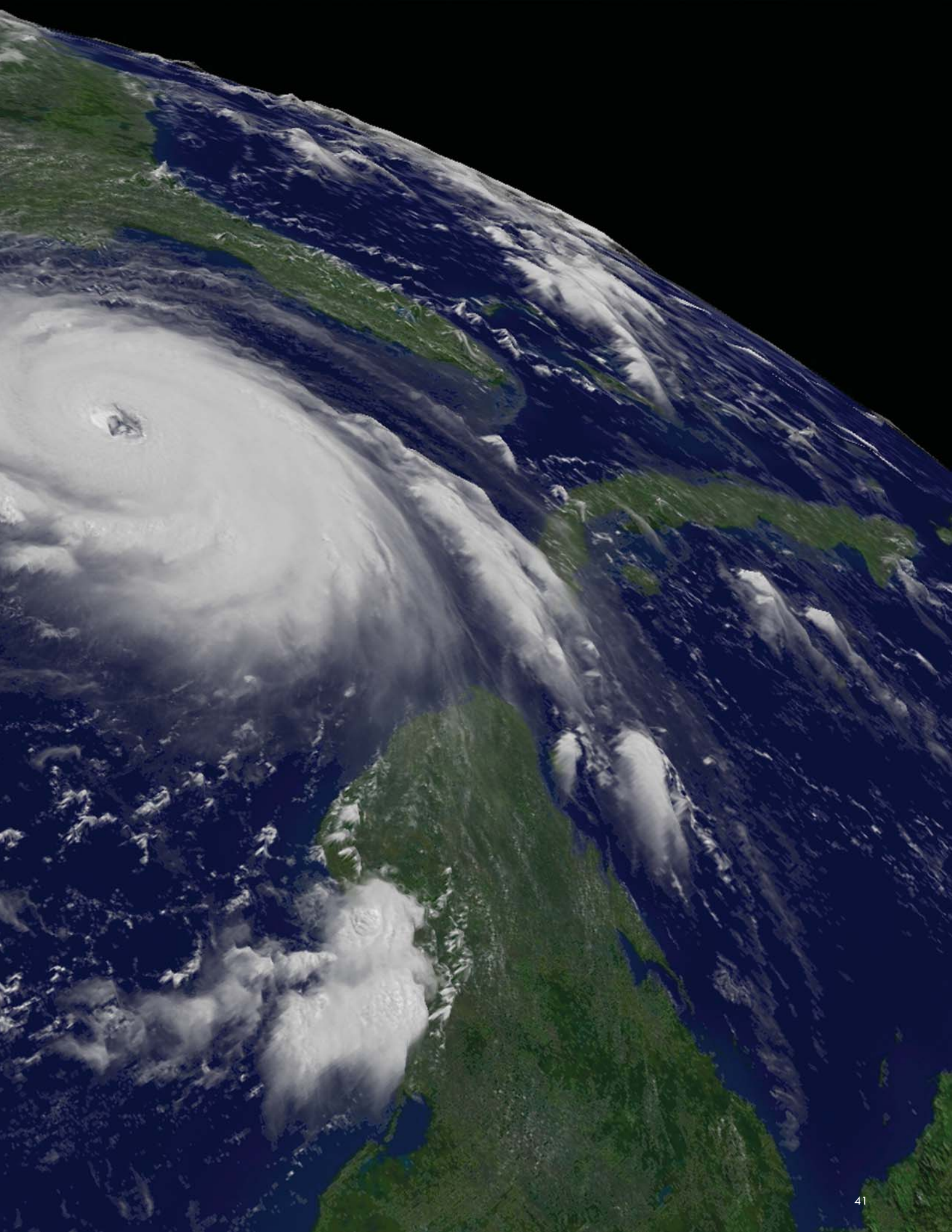
For exemplary management of complex satellite operational and acquisition budgets for more than thirty-two years of NOAA service.



A & O	Acquisition and Operations
AVHRR	Advanced Very High Resolution Radiometer
AWC	Aviation Weather Center
CDO	Climate Data Online
CIMS	Cruise Information Management System
CONUS	Continental United States
CORIS	Coral Reef Information System
COSPAS	Cosmicheskaya Sistyema Poiska Avariynich Sudov (Russian for “Space System for the Search of Vessels in Distress”)
CRN	Climate Reference Network
CRW	Coral Reef Watch
CSIGs	Convective SIGMETs
DMSP	Defense Meteorological Satellite Program
DOD	Department of Defense
DU	Dobson Unit
EEO	Equal Employment Opportunity
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
GEOS	Global Earth Observation System of Systems
GIS	Geographic Information System
GOES	Geostationary Operational Environmental Satellite
GTSP	Global Temperature Salinity Profile Program
HAB	Harmful Algal Bloom
HAZMAT	Hazardous Materials
ICADS	International Comprehensive Ocean Atmosphere Data Set
IEOS	Integrated Earth Observations System
IGOS	Integrated Global Observation Strategy
ISD	Integrated Surface Data
JCSDA	Joint Center for Satellite Data Assimilation
JMA	Japan Meteorological Agency
km	Kilometer
LCDP	Leadership Competencies Development Program
MODIS	Moderate-resolution Imaging Spectroradiometer
NASA	National Aeronautics and Space Administration
NCDC	National Climatic Data Center
NCDDC	National Coastal Data Development Center
NCEP	National Centers for Environmental Prediction
NESDIS	National Environmental Satellite, Data, and Information Service
NGDC	National Geophysical Data Center
NHC	National Hurricane Center
NIC	National Ice Center
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOSC	NOAA Observing Systems Council
NPOESS	National Polar-orbiting Operational Environmental Satellite System
NSOF	NOAA Satellite Operations Facility
NWS	National Weather Service
OE	Ocean Exploration
OPeNDAP	Open-source Project for a Network Data Access Protocol
PATMOS	Pathfinder Atmospheres Extended
PDR	Preliminary Design Review
PDRR	Program Definition and Risk Reduction
POES	Polar-orbiting Operational Environmental Satellite
RISE	River Influences on Shelf Ecosystems
SARSAT	Search and Rescue, Satellite-aided Tracking
SIGMET	Significant Meteorological Information
SNO	Simultaneous Nadir Overpass
USCRN	U.S. Climate Reference Network
USGEO	U.S. Group on Earth Observations
WCOS	West Coast Observing System

Hurricane Katrina, August 28, 2005; 1545Z. GOES-12 1 kilometer, visible imagery.





PERSONNEL

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